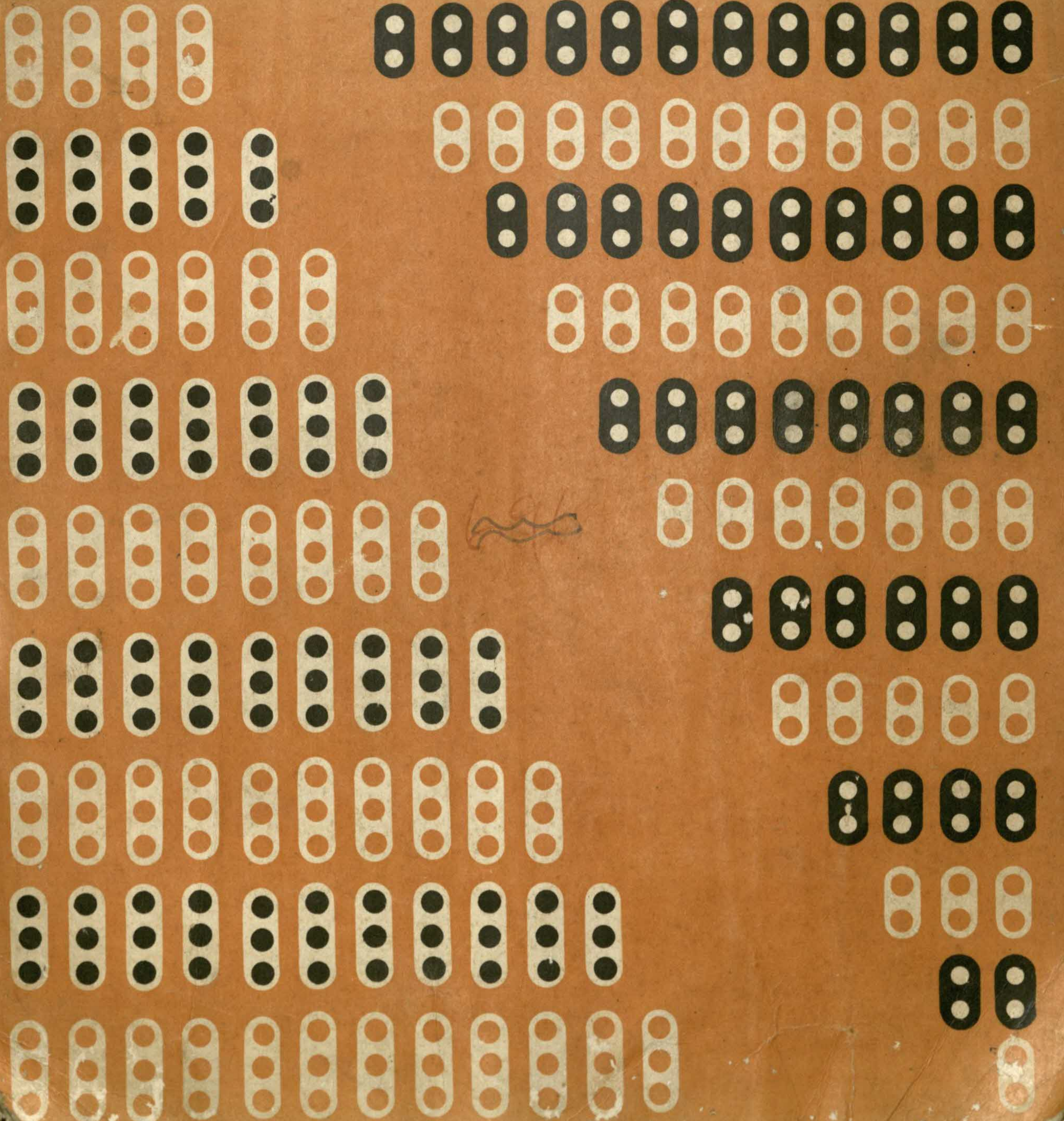
INSIGHT INTO MATHEMATICS

BOOK II



INSIGHT INTO MATHEMATICS

BOOK 2

NATIONAL COUNCIL OF EDUCATIONAL RESEARCH AND TRAINING

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FOREWORD

The Council published in 1969 a book entitled "Insight Into Mathematics-Book 1" by J.N. Kapur and K. Kapur, which was the first one of its type for the primary classes. The present book, "Insight Into Mathematics - Book 2" is a continuation of the attempt made to present mathematics to primary school children in Book 1. As usual, emphasis has been placed on the development of conceptual understanding of the principles and processes rather than on a mere formulation of mathematical facts.

The material for this book was developed by my colleagues R.C. Sharma, K.V. Rao, G.S. Baderia, R.D. Sharma and M.S. Bhatnagar. The Council had the benefit of advice and suggestions from Dr. J.N. Kapur also. The Council's grateful thanks are due to all of them.

This book is basically an experimental edition and comments and suggestions are invited. They will be gratefully acknowledged and full use would be made of them while bringing out a subsequent edition.

S. V. C. AIYA
Director

New Delhi
October 28, 1972

NUMBERS 1—100
REVISION

EXERCISE

1. Write the following in words :

47	Forty seven	58	Fifty eight
85	....	61	....
90	....	72	....
27	....	39	....
9	....	69	....

2. Write the following in words in your note-book :

12, 87, 49, 66, 80, 29 71, 50

3. Write the following in figures :

Thirty five	35	Fifty two	52
Eight	....	Seventy nine	....
Sixty eight	....	Thirty	....
Forty four	....	Ninety nine	....

4. Write the following in figures in your note-book :

Seventy seven, Eleven, Ninety four, Sixty, Forty nine.

5. Write all the numbers between :

83 and 89	84, 85, 86, 87, 88
58 and 65	....
35 and 40	....
70 and 80	....
91 and 97	....

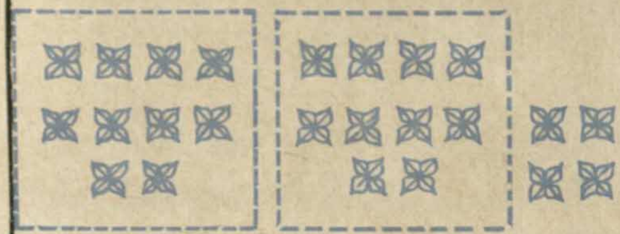
6. See the pattern and write next three numbers :

30, 40, 50, ☐, ☐, ☐	21, 23, 25, ☐, ☐, ☐
25, 35, 45, ☐, ☐, ☐	65, 55, 45, ☐, ☐, ☐
62, 64, 66, ☐, ☐, ☐	83, 73, 63, ☐, ☐, ☐
54, 57, 60, ☐, ☐, ☐	90, 89, 88, ☐, ☐, ☐

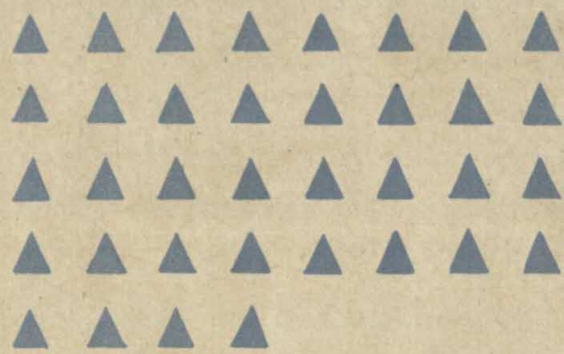
GROUPING BY TENS

EXERCISE

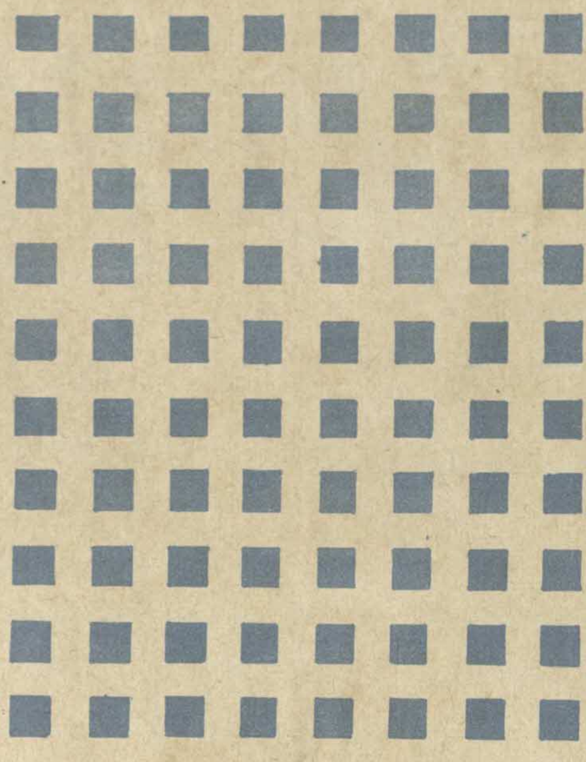
1. Count in the groups of tens and units :



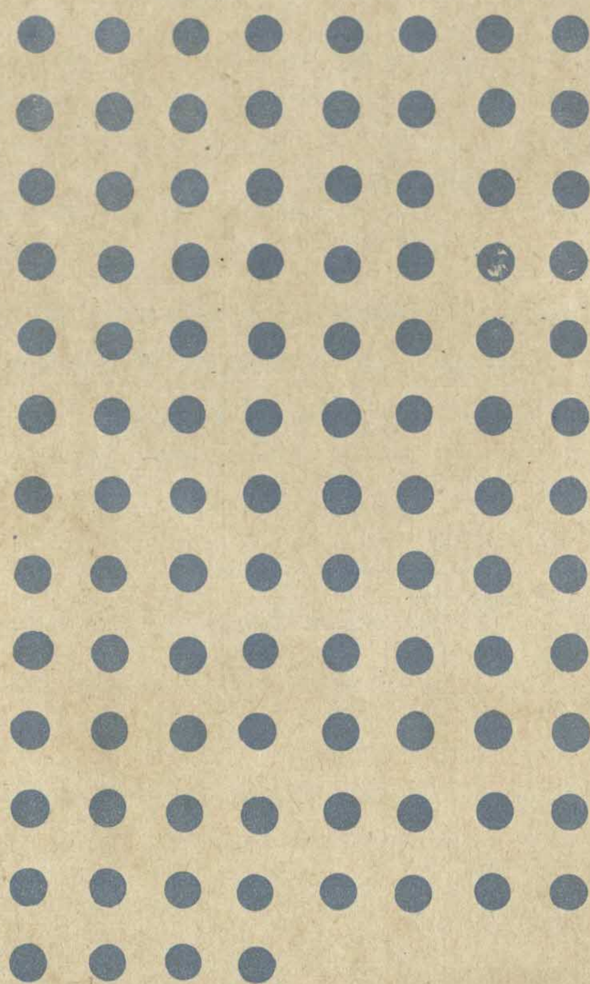
[2] tens and △4 units = 24



☐ tens and △ units = ...



☐ tens and △ units = ...



☐ tens and △ units = ...

2. Write the following numbers in expanded form

74	=	[7]	tens	+	△4	units	40	=	[4]	tens	+	△0	units
87	=	[ ]	tens	+	△	units	78	=	[ ]	tens	+	△	units
90	=	[ ]	tens	+	△	units	19	=	[ ]	tens	+	△	units
66	=	[ ]	tens	+	△	units	80	=	[ ]	tens	+	△	units
10	=	[ ]	tens	+	△	units	51	=	[ ]	tens	+	△	units
39	=	[ ]	tens	+	△	units	69	=	[ ]	tens	+	△	units

100 = 10 tens + 0 units = 1 hundred + 0 tens + 0 units.

3. Write the following in short form :

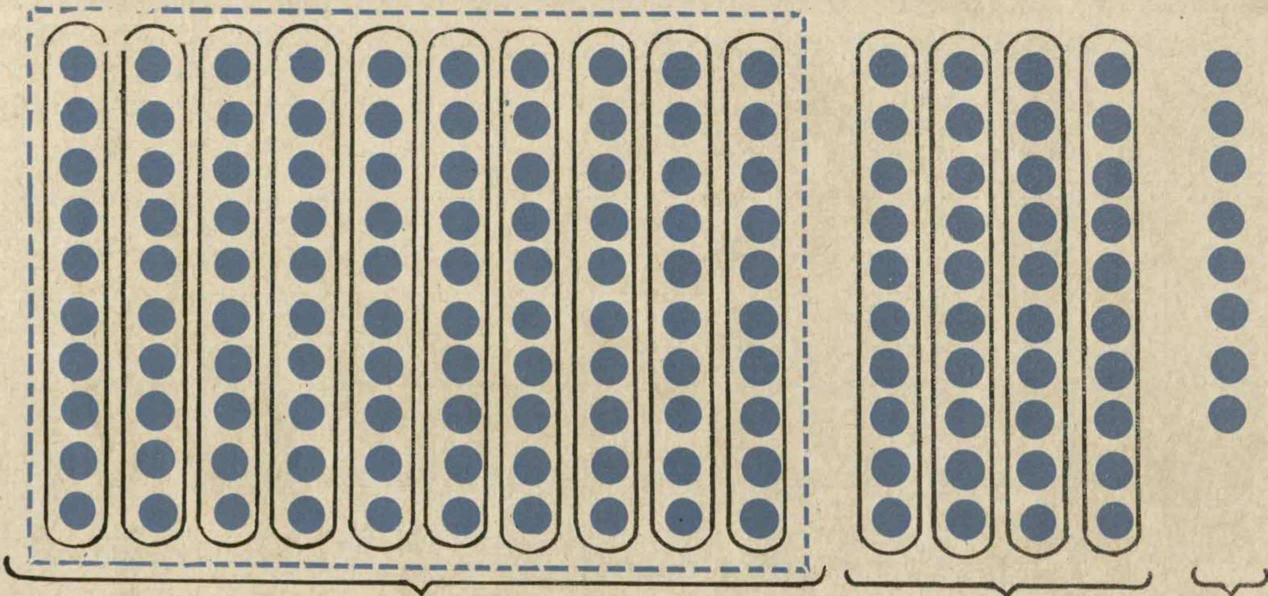
[6]	tens +	△8	units = 68	[3]	tens +	△5	units = 35
[8]	tens +	△6	units = ...	[9]	tens +	△0	units = ...
[5]	tens +	△3	units = ...	[3]	tens +	△6	units = ...
[9]	tens +	△9	units = ...	[8]	tens +	△8	units = ...
[1]	ten +	△9	units = ...	[9]	tens +	△1	unit = ...
[4]	tens +	△0	units = ...	[6]	tens +	△2	units = ...
[2]	tens +	△8	units = ...	[5]	tens +	△0	units = ...

NUMBERS GREATER THAN 100

EXERCISE

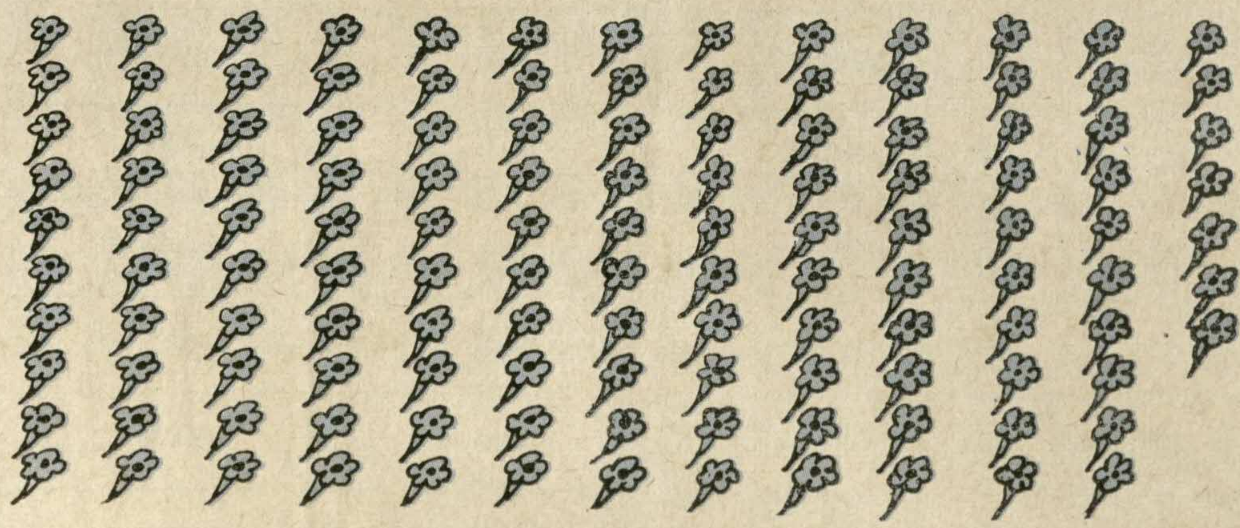
1. Count by grouping into hundreds, tens and units

(*a*)



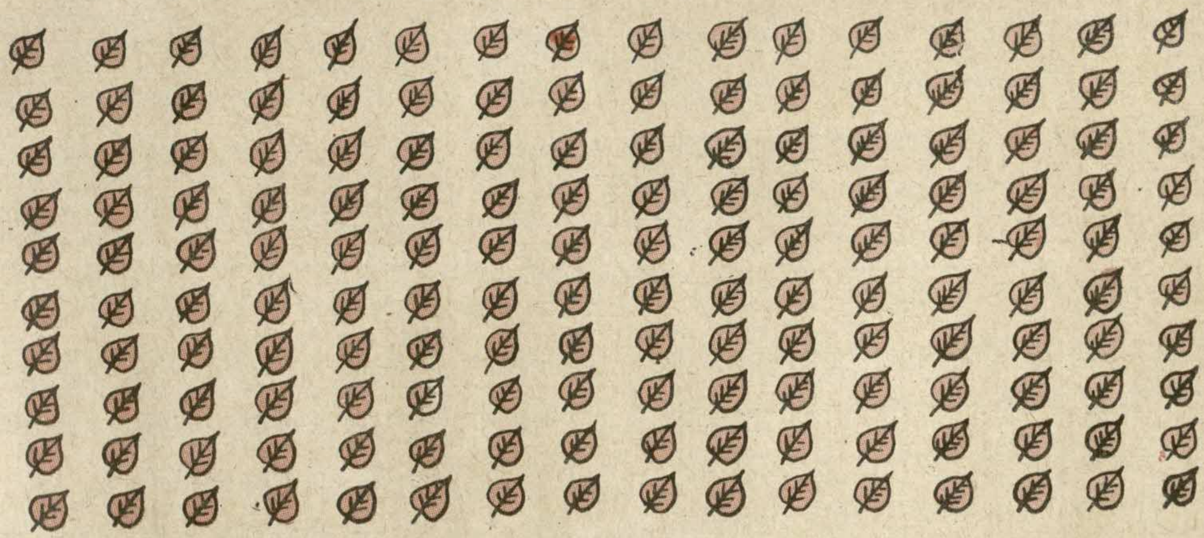
(1) hundred + [4] tens + (8) units = 148

(*b*)



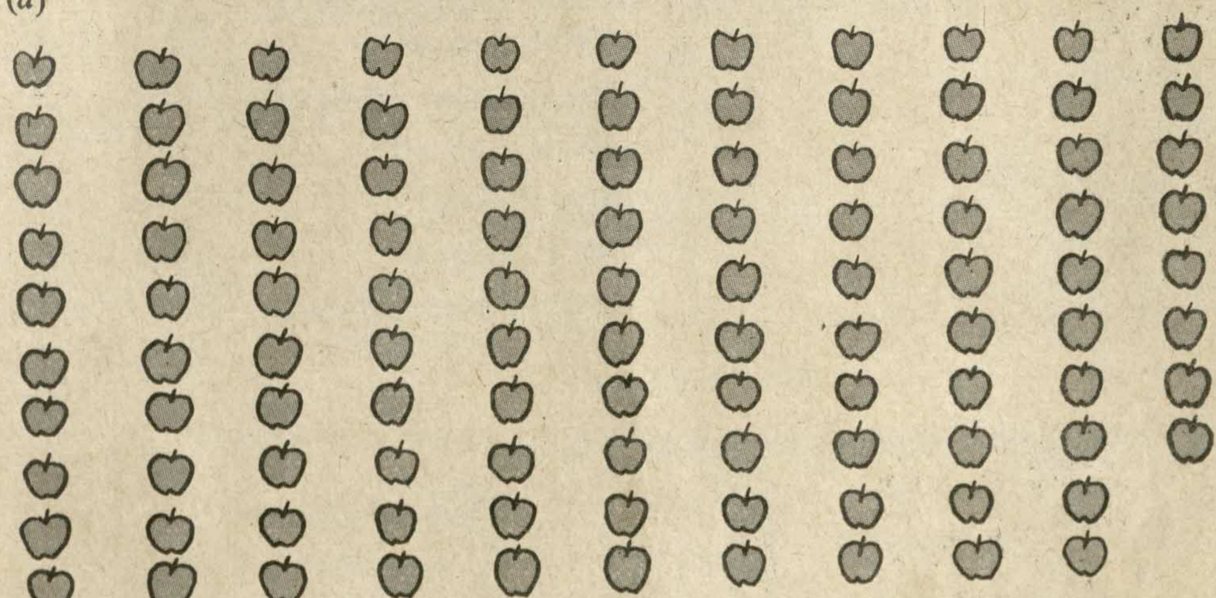
( ) hundreds + [ ] tens + ( ) units = ...

(c)



⬭ hundreds + □ tens + △ units =……

(d)



⬭ hundreds + □ tens + △ units =……

WRITING

One hundred means 1 hundred + 0 tens + 0 units and is written as	100
One hundred one means 1 hundred + 0 tens + 1 unit and is written as	101
One hundred two means 1 hundred + 0 tens + 2 units and is written as	102
One hundred three means 1 hundred + 0 tens + 3 units and is written as	103
One hundred four means 1 hundred + 0 tens + 4 units and is written as	104
One hundred five means 1 hundred + 0 tens + 5 units and is written as	105
One hundred six means 1 hundred + 0 tens + 6 units and is written as	106
One hundred seven means 1 hundred + 0 tens + 7 units and is written as	107
One hundred eight means 1 hundred + 0 tens + 8 units and is written as	108
One hundred nine means 1 hundred + 0 tens + 9 units and is written as	109
One hundred ten means one hundred + 1 ten + 0 units and is written as	110

READING

106 is read as one hurdred six	111 is read as one hundred eleven
115 is read as one hundred fifteen	198 is read as one hundred ninety eight
170 is read as one hundred seventy	200 is read as two hundred
139 is read as one one hundred thirty nine	169 is read as one hundred sixty nine

EXERCISE

1. Write the following numbers in expanded form :

169 =	(1)	hundred +	[6]	tens +	△ 9	units
145 =	( )	hundred +	[ ]	tens +	△	units
183 =	( )	hundred +	[ ]	tens +	△	units
170 =	( )	hundred +	[ ]	tens +	△	units
155 =	( )	hundred +	[ ]	tens +	△	units
104 =	( )	hundred +	[ ]	tens +	△	units
111 =	( )	hundred +	[ ]	tens +	△	units

2. Write the following numbers in expanded from in your note-book

112, 108, 159, 177, 146

3. Write the numbers in short form

(1) hundred + [3] tens + △2 units = 132
(1) hundred + [0] tens + △7 units = ...
(1) hundred + [9] tens + △8 units = ...
(1) hundred + [5] tens + △6 units = ...
(1) hundred + [6] tens + △0 units = ...
(1) hundred + [1] ten + △1 unit = ...
(1) hundred + [4] tens + △9 units = ...

4. Complete the table (Numbers from 101 to 200)

101	102	103							110
111				115				119	
						127			
			134				138		
	142				146				150
151				155					
		163						169	
			174						180
181	182						188		
				195					200

5. Add by counting

11 + 2 = [13]	154 + 5 = [159]	19 + 0 = [19]
15 + 5 = [ ]	172 + 8 = [ ]	131 + 7 = [ ]
32 + 7 = [ ]	110 + 9 = [ ]	150 + 0 = [ ]
91 + 8 = [ ]	144 + 4 = [ ]	178 + 8 = [ ]
70 + 7 = [ ]	66 + 6 = [ ]	187 + 0 = [ ]
101 + 5 = [ ]	93 + 7 = [ ]	167 + 7 = [ ]
82 + 6 = [ ]	198 + 2 = [ ]	189 + 9 = [ ]

6. In a class there are 29 boys and 8 girls. How many children are there in the class ?

Number of boys in the class = 29
Number of girls in the class = 8
Total number of boys and girls in the class = 29 + 8
= 37

7. Sudhir and Shyam went to a shop. Sudhir spent 75 paise and Shyam spent 10 paise. How much did they spend in the shop ?

Amount spent by Sudhir = ... paise
Amount spent by Shyam = ... paise
Amount spent by both = ... paise

8. Sadhna has got 22 toffees. Her mother gave 8 toffees more to her. How many toffees has she got ?

Number of toffees with Sadhna = ...
Number of toffees given by her mother = ...
Total number of toffees = ...
= ......

9. Vijay bought milk for 50 paise and a tea packet for 5 paise. How much did he pay ?

Amount paid for milk = ... paise
Amount paid for tea = ... paise
Total amount paid = ... paise
= ...... paise

10. In a packet there are 30 pencils and 7 pencils are in loose form. How many pencils are there in all ?

Pencils in the packet = ...
Pencils in loose form = ...
Total number of pencils = ...
= ......

EXERCISE

1. Subtract by counting

19 − 2 =	17	102 − 0 =	102	161 − 9 =	152
41 − 7 =		184 − 5 =		200 − 0 =	
69 − 9 =		70 − 7 =		149 − 8 =	
85 − 3 =		139 − 4 =		120 − 2 =	
77 − 9 =		152 − 8 =		86 − 3 =	
98 − 7 =		99 − 10 =		79 − 9 =	
51 − 1 =		76 − 7 =		101 − 4 =	

2. There were 15 monkeys in a cage. 8 of them got out. How many were still in the cage ?

Number of monkeys in the cage = 15
Number of monkeys got out = 8
Number of monkeys still in the cage = 15 − 8
= 7

3. Raju had 75 paise. He went to the fair. He paid 10 paise for a popcorn packet. How many paise are left with him ?

Raju had ☐ paise.
For popcorn he paid ☐ paise.
Amount left with him ☐ paise.

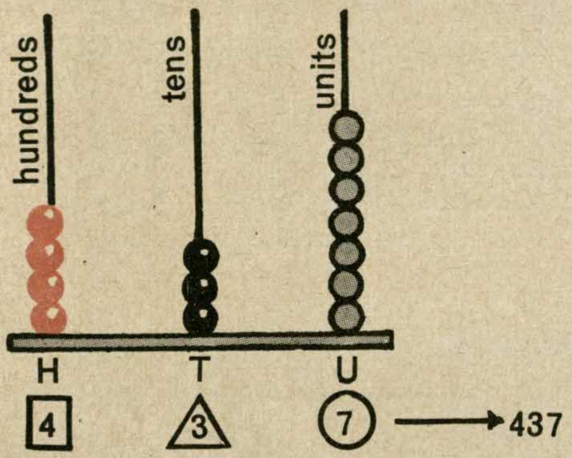
4. There were 107 pupils at a picnic. Out of these 9 were girls. How many boys were there ?

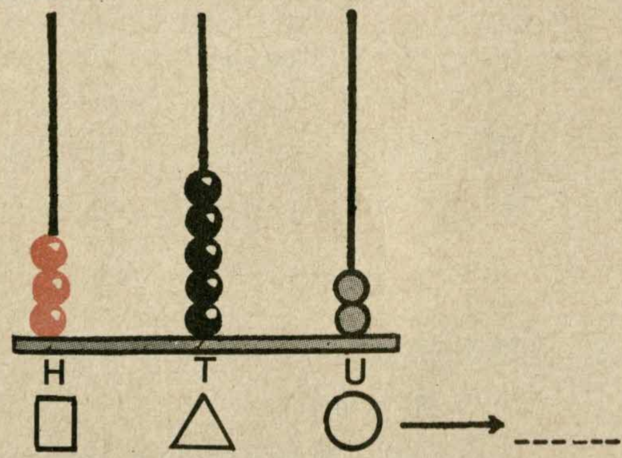
Number of pupils = ☐
Number of girls = ☐
Number of boys = ☐
= ______

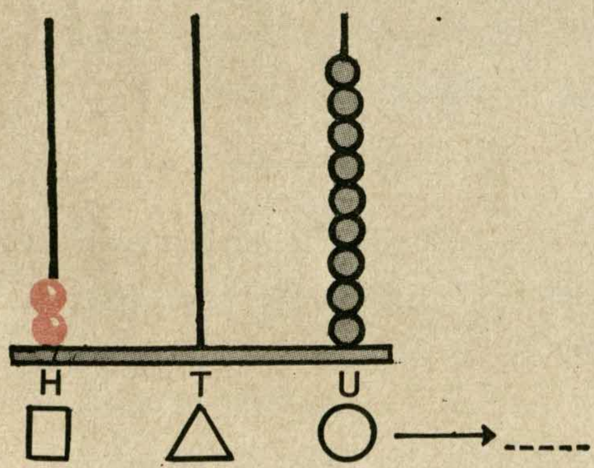
Numbers greater than 200

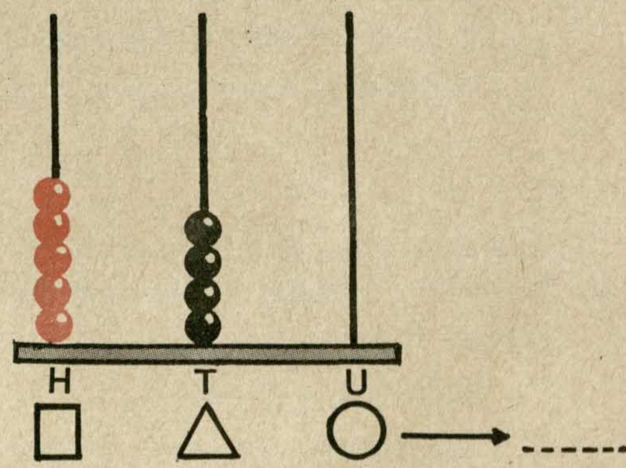
EXERCISE

1. Write the numbers shown on the abacus :

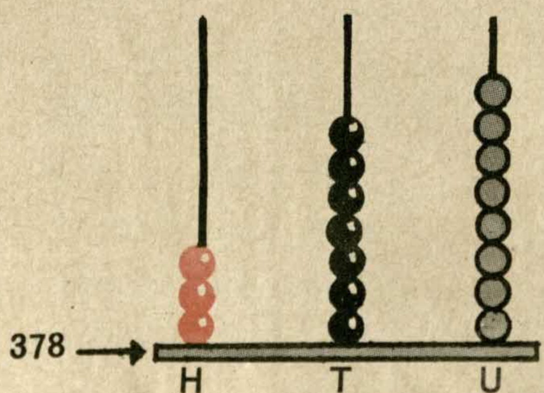


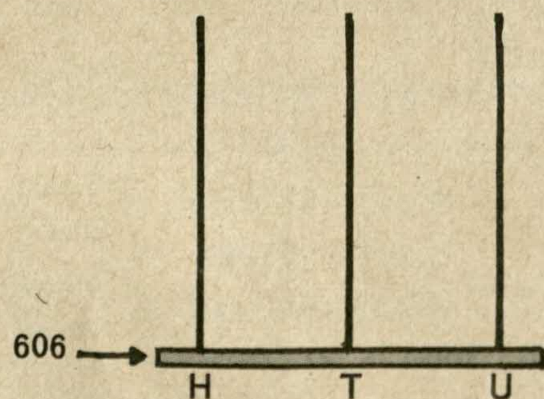






2. Show the numbers on the abacus :





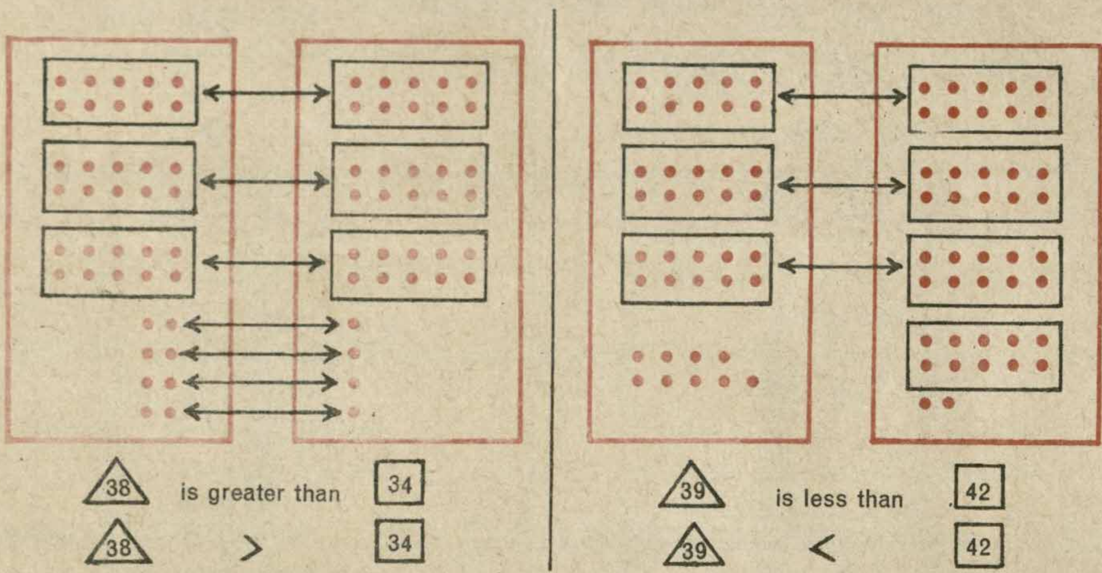
3. See the pattern and write the missing numbers :

200, 201, 202, [203,] [204,] [205,] [206.] 207, 208	572, 570, 568, [ ], [ ], [ ], 560
427, 428, 429, [ ], [ ], [ ], [ ], 434, 435	371, 372, [ ], [ ], [ ], [ ], [ ], [ ] 379
717, 719, 721, [ ], [ ], [ ], 729, 731	901, 904, 907, [ ], [ ], [ ], 919
510, 520, 530, [ ], [ ], [ ], 570, 580	635, 640, 645, [ ], [ ], [ ], 665, 670
113, 213, 313, [ ], [ ], [ ], 713, 813	212, 222, 232, [ ], [ ], [ ], 272, 282

4. Rewrite as hundreds and tens :

12 tens = (10) tens + [2] tens = (1) hundred + [2] tens	28 T = ( ) T + [8] T = ( ) H + [ ] T
56 T = ( ) T + [6] T = ( ) H + [6] T	37 T = ( ) T + [7] T = ( ) H + [ ]
90 T = ( ) T + [0] T = ( ) H + [0] T	81 T = ( ) T + [1] T = ( ) H + [ ] T

IS GREATER THAN, IS LESS THAN



EXERCISE

Put the symbol > or < correctly.

61 [>] 58	77 [<] 80	162 [<] 163
97 ☐ 91	51 ☐ 61	222 ☐ 228
84 ☐ 83	95 ☐ 99	107 ☐ 109
158 ☐ 152	166 ☐ 169	628 ☐ 621
433 ☐ 430	881 ☐ 888	746 ☐ 745
28 [>] 24	32 [>] 22	117 [>] 17
228 ☐ 224	132 ☐ 122	417 ☐ 317
428 ☐ 424	532 ☐ 522	817 ☐ 717
728 ☐ 724	932 ☐ 922	317 ☐ 217
828 ☐ 824	732 ☐ 722	617 ☐ 517

EXERCISE

1. Write all possible 2 digit numbers from the given digits.
   Given 2 and 5; the numbers are 25, 22, 52, 55
   Given 8 and 1, the numbers are ... , ... , ... , ...
   Given 7 and 9, the numbers are ... , ... , ... , ...
   Given 6 and 3, the numbers are ... , ... , ... , ...

ADDITION OF NUMBERS

(Addition without carrying)

You know that :

53 + 32 = ([5] Tens + (3) Units) + ([3] Tens + (2) Units)
= [5+3] Tens + (3+2) Units
= [8] Tens + (5) Units
= 85

85 is the SUM of 53 and 32

EXERCISE

Find the sum in each of the following:

1. 33 + 42
= ([3] T + (3) U) +
([4] T + (2) U)
= [3+4] T + (3+2) U
= [7] T + (5) U
= 75

2. 63 + 12
= (□ T + ○ U) + (□ T + ○ U)
= [...+...] T + (..+..) U
= □ T + ○ U
= ....

3. 24 + 35
= (□ T + ○ U) +
(□ T + ○ U)
= □ T + ○ U
= □ T + ○ U
= ....

4. 41 + 3
= (□ T + ○ U) + (□ T + ○ U)
= □ T + ○ U
= □ T + ○ U
= ....

5. 36 + 20
= (□ T + ○ U) + (□ T + ○ U)
= □ T + ○ U
= □ T + ○ U
= ....

6. 46 + 23
= (□ T + ○ U) + (□ T + ○ U)
= □ T + ○ U
= □ T + ○ U
= ....

Let us add 243 and 324.

243 + 324
= (△2△ Hundreds + [4] Tens + (3) Units) + (△3△ Hundreds
+ [2] Tens + (4) Units)
= △2 + 3△ Hundreds + [4+2] Tens + (3+4) Units
= △5△ Hundreds + [6] Tens + (7) Units
= 567

EXERCISE

Find the Sum in each of the following :

1. 162 + 213

= (△1 H + □6 T + ◯2 U) + (△2 H + □1 T + ◯3 U)

= △1+2 H + □6 + 1 T + ◯2+3 U

= △3 H + □7 T + ◯5 U

= 375

2. 423 + 106

= (△ H + □ T + ◯ U) + (△ H + □ T + ◯ U)

= △...+... H + □...+... T + ◯...+... U

= △ H + □ T + ◯ U

= ....

3. 230 + 56

= (△ H + □ T + ◯ U) + (△ H + □ T + ◯ U)

= △ H + □ T + ◯ U

= △ H + □ T + ◯ U

= ....

4. 502 + 7

= (△ H + □ T + ◯ U) + (△ H + □ T + ◯ U)

= △ H + □ T + ◯ U

= △ H + □ T + ◯ U

= ....

5. 333 + 444

= (△ H + □ T + ◯ U) + (△ H + □ T + U)

= △ H + □ T + ◯ U

= △ H + □ T + ◯ U

= ....

6. 213 + 132 + 324

= (△2 H + □1 T + ◯3 U) + (△1 H + □3 T + ◯2 U)

+ (△3 H + □2 T + ◯4 U)

= △2 + 1 + 3 H + □1 + 3 + 2 T + ◯3 + 2 + 4 U

= △ H + □ T + ◯ U

= ....

7. 210 + 407 + 321

= (△ H + □ T + ◯ U) + (△ H + □ T + ◯ U)
+ (△ H + □ T + ◯ U)

= (... + ... + ...) H + (.... + ... + ...) T + (... + ... + ...) U

= △ H + □ T + ◯ U

= ....

8. 512 + 82 + 300

= (△ H + □ T + ◯ U) + (△ H + □ T + ◯ U)
+ (△ H + □ T + ◯ U)

= △ H + □ T + ◯ U

= △ H + □ T + ◯ U

= ....

9. 171 + 104 + 222

= (△ H + □ T + ◯ U) + (△ H + □ T + ◯ U)
+ (△ H + □ T + ◯ U)

= △ H + □ T + ◯ U

= △ H + □ T + ◯ U

= ....

10. 414 + 203 + 12

= (△ H + □ T + ◯ U) + (△ H + □ T + ◯ U)
+ (△ H + □ T + ◯ U)

= △ H + □ T + ◯ U

= △ H + □ T + ◯ U

= ....

EXERCISE

Find the Sum of each in your note-book.

1. 302 + 420
2. 425 + 312
3. 326 + 413
4. 421 + 63
5. 81 + 304
6. 171 + 104 + 323
7. 142 + 201 + 310
8. 112 + 140 + 23
9. 230 + 304 + 100
10. 310 + 115 + 231

SUBTRACTION OF NUMBERS

(Without borrowing)

You know that :

86 − 23 = (△8 Tens + □6 Units) − (△2 Tens + □3 Units)
= △(8 − 2) Tens + □(6 − 3) Units
= △6 Tens + □3 Units
= <u>63</u>

> 23 subtracted from 86 is 63
>
> OR
>
> Difference of 86 and 23 is 63

EXERCISE

Find the difference in each of the following :

1. 95 − 32 = (△ T + □ U) − (△ T + □ U)
= △(−) T + □ U
= △ T + □ U
= ....

2. 65 − 20 = (△ T + □ U) − (△ T + □ U)
= △ T + □ U
= △ T + □ U
= ....

3. 76 − 26 = (△ T + □ U) − (△ T + □ U)
= △ T + □ U
= △ T + □ U
= ....

4. 89 − 81 = (△ T + □ U) − (△ T + □ U)
= △ T + □ U
= △ T + □ U
= ....

5. 79 − 4 = (△ T + □ U) − (△ T + □ U)
= △ T + □ U
= △ T + □ U
= ....

6. 70 − 50 = (△T + □ U) − (△T + □ U)
= △T + □ U
= △T + □ U
= …………

7. 56 − 26 = (△T + □ U) − (△T + □ U)
= △T + □ U
= △T + □ U
= …………

8. 88 − 66 = (△T + □ U) − (△T + □ U)
= △T + □ U
= △T + □ U
= …………

EXERCISE

Find the difference in each of the following in your note-book.

1. 38 − 12	**6.** 59 − 52
2. 89 − 76	**7.** 98 − 28
3. 58 − 28	**8.** 70 − 60
4. 39 − 7	**9.** 54 − 32
5. 66 − 36	**10.** 95 − 35

Let us subtract 234 from 485.

485 − 234 = ((4) H + △8 T + [5] U)
− ((2) H + △3 T + [4] U)
= (4 − 2) H + △(8 − 3) T + [5 − 4] U
= (2) H + △5 T + [1] U
= 251

234 subtracted from 485 is equal to 251 or Difference of 485 and 234 is 251

EXERCISE

Find the difference in each of the following :

1. 476 − 251 = ((4) H + △7 T + [6] U)

− ((2) H + △5 T + [1] U)

= (4 − 2) H + △(7−5) T + [6 − 1] U

= ◯ H + △ T + □ U

= …………

2. 563 − 102 = (◯ H + △ T + □ U) − (◯ H + △ T + □ U)

= ◯ H + △(−) T + [−] U

= ◯ H + △ T + □ U

= …………

3. 790 − 460 = (◯ H + △ T + □ U) − (◯ H + △ T + □ U)

= ◯ H + △ T + □ U

= ◯ H + △ T + □ U

= …………

4. 807 − 403 = (◯ H + △ T + □ U)

− (◯ H + △ T + □ U)

= ◯ H + △ T + □ U

= ◯ H + △ T + □ U

= …………

5. 348 − 26 = (◯ H + △ T + □ U)

− (◯ H + △ T + □ U)

= ◯ H + △ T + □ U

= ◯ H + △ T + □ U

= …………

6. 458 − 148 = (◯ H + △ T + □ U)

− (◯ H + △ T + □ U)

= ◯ H + △ T + □ U

= ◯ H + △ T + □ U

= …………

EXERCISE

Find the difference in each of the following in your note-book :

1. 324 − 121
2. 538 − 203
3. 438 − 228
4. 356 − 24
5. 854 − 352
6. 928 − 902
7. 480 − 360
8. 580 − 60
9. 321 − 101
10. 685 − 385

ADDITION WITH CARRYING

Let us add 26 and 17.

$26 + 17$

$= (\triangle 2\ T + \boxed{6}\ U) + (\triangle 1\ T + \boxed{7}\ U)$

$= \triangle(2 + 1)\ T + \boxed{6 + 7}\ U$

$= \triangle 3\ T + \boxed{13}\ U$

$= \triangle 3\ T + (\boxed{10}\ U + \boxed{3}\ U)$

$= \triangle 3\ T + (\triangle 1\ T + \boxed{3}\ U)$

$= \triangle(3 + 1)\ T + \boxed{3}\ U$

$= \triangle 4\ T + \boxed{3}\ U$

$= 43.$

EXERCISE

Find the sum in each of the following :

1. $43 + 38 = (\triangle 4\ T + \boxed{3}\ U) + (\triangle 3\ T + \boxed{8}\ U)$

$= \triangle(4 + 3)\ T + \boxed{3 + 8}\ U$

$= \triangle 7\ T + \boxed{11}\ U$

$= \triangle 7\ T + (\triangle 1\ T + \boxed{1}\ U)$

$= \triangle(7 + 1)\ T + \boxed{1}\ U$

$= \triangle 8\ T + \boxed{1}\ U$

$= 81$

2. $46 + 34 = (\triangle\ T + \square\ U) + (\triangle\ T + \square\ U)$

$= \triangle(\ldots + \ldots)\ T + \boxed{\ldots + \ldots}\ U$

$= \triangle\ T + (\triangle 1\ T + \boxed{0}\ U)$

$= \triangle(\ldots + \ldots)\ T + \square\ U$

$= \triangle\ T + \square\ U$

$= \ldots\ldots\ldots\ldots$

3. 28 + 36 = (△ T + □ U) + (△ T + □ U)
= △ T + □ U
= △ T + □ U
= △ T + (△ T + □ U)
= △ T + □ U
= △ T + □ U
= ....

4. 67 + 23 = (△ T + □ U) + (△ T + □ U)
= △ T + □ U
= △ T + □ U
= △ T + (△ T + □ U)
= △ T + □ U
= △ T + □ U
= ....

5. 54 + 38 = (△ T + □ U) + (△ T + □ U)
= △ T + □ U
= △ T + □ U
= △ T + (△ T + □ U)
= △ T + □ U = △ T + □ U
= ....

6. 68 + 56 = (△6 T + □8 U) + (△5 T + □6 U)
= △6+5 T + □8 + 6 U
= △11 T + □14 U
= △11 T + (△1 T + □4 U)
= △11+1 T + □4 U
= △12 T + □4 U
= ◯1 H + △2 T + □4 U
= 124

7. 74 + 46 = (△ T + □ U) + (△ T + □ U)
= △...+... T + □...+... U
= △ T + □ U
= △ T + (△ T + □ U)
= △...+... T + □ U = △ T + □ U

= ◯H + △T + □U

= ....

8. 47 + 57 = (△T + □U) + (△T + □U)

= △(...+...)T + □(...+...)U

= △T + □U

= △T + (△T + □U)

= △(...+...)T + □U

= △T + □U

= ◯H + △T + □U

= ....

9. 68 + 56 = (△T + □U) + (△T + □U)

= △(...+...)T + □(...+...)U

= △T + □U

= △T + (△T + □U)

= △(...+...)T + □U

= △T + □U

= ◯H + △T + □U

= ....

10. 74 + 68 = (△T + □U) + (△T + □U)

= △(...+...)T + △(...+...)U

= △T + □U

= △T + (△T + □U)

= △(...+...)T + □U

= △T + □U

= ◯H + △T + □U

= ....

EXERCISE

Find the sum in each of the following in your note-book.

1. 36 + 27
2. 46 + 34
3. 31 + 9
4. 57 + 37
5. 43 + 38
6. 28 + 28
7. 54 + 67
8. 82 + 58
9. 76 + 44
10. 39 + 81

SUBTRACTION WITH BORROWING

Let us subtract 25 from 48.

$$48 - 25 = (\triangle\!4\ T + \boxed{8}\ U) - (\triangle\!2\ T + \boxed{5}\ U)$$
$$= \triangle\!(4-2)\ T + \boxed{8-5}\ U$$
$$= \triangle\!2\ T + \boxed{3}\ U$$
$$= 23$$

Now let us subtract 16 from 32

$$32 - 16 = (\triangle\!3\ T + \boxed{2}\ U) - (\triangle\!1\ T + \boxed{6}\ U)$$
$$= \triangle\!(3-1)\ T + \triangle\!(2-6)\ U$$
$$= \triangle\!2\ T + ?$$

We do not know how to subtract 6 from 2.

So we do as follows :

$$32 = \triangle\!3\ \text{Tens} + \boxed{2}\ \text{Units}$$
$$= \triangle\!(2+1)\ \text{tens} + \boxed{2}\ \text{units}$$
$$= \triangle\!2\ \text{tens} + \triangle\!1\ \text{ten} + \boxed{2}\ \text{units}$$
$$= \triangle\!2\ \text{tens} + \boxed{12}\ \text{units}$$
$$32 - 16 = (\triangle\!2\ \text{tens} + \boxed{12}\ \text{units}) - (\triangle\!1\ \text{ten} + \boxed{6}\ \text{units})$$
$$= \triangle\!(2-1)\ \text{tens} + \boxed{12-6}\ \text{units}$$
$$= \triangle\!1\ \text{ten} + \boxed{6}\ \text{units}$$
$$= 16$$

$$\boxed{32 - 16 = 16}$$

In the second example we say we borrowed one ten from 3 tens. In the first example there was no need for borrowing.

EXERCISE

In which of the following borrowing is necessary. Put a ✓ mark against it.

1.	34 − 18	□	**6.**	54 − 34	□
2.	54 − 33	□	**7.**	76 − 48	□
3.	74 − 49	□	**8.**	44 − 39	□
4.	47 − 25	□	**9.**	36 − 34	□
5.	63 − 49	□	**10.**	72 − 54	□

Find the difference in each case :

1. 42 − 17 = (△4 T + □2 U) − (△1 T + □7 U)
= (△3 T + □12 U) − (△1 T + □7 U)
= △(3−1) T + □(12−7) U
= △2 T + □5 U
= 25

2. 62 − 36 = (△ T + □ U) − (△ T + □ U)
= (△ T + □ U) − (△ T + □ U)
= △(...−...) T + □(...−...) U
= △ T + □ U
= ....

3. 52 − 28 = (△ T + □ U) − (△ T + □ U)
= (△ T + □ U) − (△ T + □ U)
= △(...−...) T + □(...−...) U
= △ T + □ U
= ....

4. 66 − 37 = (△ T + □ U) − (△ T + □ U)
= (△ T + □ U) − (△ T + □ U)
= △(...−...) T + □(...−...) U
= △ T + □ U
= ....

5. 80 − 38 = (△ T + □ U) − (△ T + □ U)
= (△ T + □ U) − (△ T + □ U)
= △(...−...) T + □(...−...) U
= △ T + □ U
= ....

6. 45 − 9 = (△ T + □ U) − (△ T + □ U)
= (△ T + □ U) − (△ T + □ U)
= △(...−...) T + □(...−...) U
= △ T + □ U
= ....

EXERCISE

Work out in your note-book :

1. 82 – 34	**6.** 62 – 44
2. 74 – 38	**7.** 63 – 47
3. 66 – 37	**8.** 47 – 39
4. 80 – 26	**9.** 55 – 28
5. 70 – 45	**10.** 48 – 29

COLUMN ADDITION

(Without carrying)

You know that :

T	U
2	2
+ 5	3
7	5

$$
\begin{array}{l}
\ \ \ \ \triangle\!2\ T + \boxed{2}\ U \\
+\ \triangle\!5\ T + \boxed{3}\ U \\
\hline
\triangle\!2+5\ T + \boxed{2+3}\ U \\
= \triangle\!7\ T + \boxed{5}\ U \\
= 75
\end{array}
$$

EXERCISE

Find the sum in each of the following :

1.

T	U
2	3
1	4

2.

T	U
3	4
2	5

3.

T	U
2	1
3	0
	6

4.

T	U
2	0
3	1
1	4
2	3

5.

T	U
4	0
3	2
	3
1	4

6.

T	U
3	1
2	3
1	0
1	2
	4

EXERCISE

Work out in your note book by column method.

1. 3 + 12 + 23
2. 14 + 21 + 3
3. 6 + 12 + 10 + 11
4. 10 + 12 + 24 + 11
5. 13 + 4 + 20 + 11
6. 20 + 30 + 10 + 5
7. 12 + 6 + 11 + 20
8. 10 + 16 + 30 + 2
9. 13 + 3 + 12 + 30
10. 32 + 12 + 10 + 15

COLUMN ADDITION

(With carrying)

Let us add 26 and 38 by column method.

△2 T + □6 U
\+ △3 T + □8 U

△3+2 T + □8+6 U

= △5 T + □14 U
= △5 T + △1 T + □4 U
= △5+1 T + □4 U
= △6 T + □4 U
= 64

T	U
2	6
3	8
5	14
5	10+4
5+1	4
6	4

EXERCISE

Find the sum in each of the following :

1.

	T	U
	1	8
	3	7
	△4	□15
=	△4	□10+5
=	△4+1	□5
=	△5	□5
=	55	

2.

	T	U
	3	8
	4	5
	△	□
=	△	□...+...
=	△...+...	□
=	△	□
=	....	

3.

	T	U
	7	6
	1	8
	△	□
=	△	□
=	△	□
=	△	□
=	....	

4.

T	U
2	9
3	5
△	□
= △	□
= △	□
= △	□
=	

5.

T	U
4	7
3	8
△	□
= △	□
= △	□
= △	□
=	

6.

T	U
6	2
1	9
△	□
= △	□
= △	□
= △	□
=	

SEE the following example :

T	U
1	7
2	5
△	[12]

→

T	U
1	7
2	5
△	[10+2]

→

T	U
△1	
1	7
2	5
△	[2]

→

T	U
△1	
1	7
2	5
△4	[2]

EXERCISE

Work out :

1.

T	U
△1	
2	6
5	8
△8	[4]

2.

T	U
△	
1	5
4	7
△	□

3.

T	U
△	
4	3
2	8
△	□

4.

T	U
△	
3	8
2	4
△	□

5.

T	U
△	
2	6
3	4
△	□

6.

T	U
△	
1	5
2	3
1	6
△	□

7.

T	U
△	
2	7
1	0
3	5
△	□

8.

T	U
△	
1	3
4	6
2	3
△	□

9.

T	U
△	
3	4
1	7
2	6
△	□

10.

T	U
△	
3	9
2	6
1	4
△	□

EXERCISE

Work out the following in your note book :

1. 43 + 29 **6.** 22 + 8 + 15

2. 56 + 37 **7.** 32 + 14 + 16

3. 18 + 28 **8.** 45 + 3 + 8

4. 35 + 55 **9.** 11 + 15 + 26

5. 44 + 36 **10.** 30 + 16 + 28

ADDITION WITH CARRYING

(Addition of 3 - digit numbers)

Let us add 382 and 144

382 + 144 = (△3 H + [8] T + (2) U) + (△1 H + 4 [T] + (4) U)
= △3+1 H + [8+4] T + (2+4) U
= △4 H + [12] T + (6) U
= △4 H + △1 H + [2] T + (6) U
= △4+1 H + [2] T + (6) U
= △5 H + [2] T + (6) U
= 526

EXERCISE

Work out :

1. 493 + 234 = (△4 H + [9] T + (3) U) + (△2 H + [3] T + (4) U)
= △4+2 H + [9+3] T + (3+4) U
= △6 H + [12] T + (7) U
= △6 H + (△1 H + [2] T) + (7) U
= △6+1 H + [2] T + (7) U
= △7 H + [2] T + (7) U
= 727

2. 234 + 490 = (△ H + [ ] T + ( ) U) + (△ H + [ ] T + ( ) U)
= △...+... H + [...+...] T + (...+...) U
= △ H + [ ] T + ( ) U
= △ H + △ H + [ ] T + ( ) U
= △...+... H + [ ] T + ( ) U
= △ H + [ ] T + ( ) U = ...

3. 446 + 182 = (△H + □T + ◯U) + (△H + □T + ◯U)

= △H + □T + ◯U

= △H + □T + ◯U

= △H + □H + ◯T + ◯U

= △H + □T + ◯U

= △H + □T + ◯U

= ....

4. 375 + 83 = (△H + □T + ◯U) + (△H + □T + ◯U)

= △H + □T + ◯U

= △H + □T + ◯U

= △H + △H + □T + ◯U

= △H + □T + ◯U

= △H + □T + ◯U

= ....

5. 93 + 264 = (△H + □T + ◯U) + (△H + □T + ◯U)

= △H + □T + ◯U

= △H + □T + ◯U

= △H + △H + □T + ◯U

= △H + □T + ◯U

= △H + □T + ◯U

= ....

6. 331 + 175 = (△H + □T + ◯U) + (△H + □T + ◯U)

= △H + □T + ◯U

= △H + □T + ◯U

= △H + △H + □T + ◯U

= △H + □T + ◯U

= △H + □T + ◯U

= ....

EXERCISE

Work out the following in your note book :

1. 260 + 174

2. 476 + 183

3. 221 + 85

4. 346 + 280

5. 48 + 81

6. 241 + 93

7. 68 + 70

8. 144 + 272

Let us add 184 and 238

$184 + 238 = (\triangle 1\ H + \boxed{8}\ T + \bigcirc 4\ U) + (\triangle 2\ H + \boxed{3}\ T + \bigcirc 8\ U)$

$= \triangle 1+2\ H + \boxed{8+3}\ T + \bigcirc 4+8\ U$

$= \triangle 3\ H + \boxed{11}\ T + \bigcirc 12\ U$

$= \triangle 3\ H + \triangle 1\ H + \boxed{1}\ T + \triangle 1\ T + \bigcirc 2\ U$

$= \triangle 3+1\ H + \boxed{1+1}\ T + \bigcirc 2\ U$

$= \triangle 4\ H + \boxed{2}\ T + \bigcirc 2\ U$

$= 422$

EXERCISE

1. $163 + 158 = (\triangle 1\ H + \boxed{6}\ T + \bigcirc 3\ U) + (\triangle 1\ H + \boxed{5}\ T + \bigcirc 8\ U)$

$= \triangle 1+1\ H + \boxed{6+5}\ T + \bigcirc 3+8\ U$

$= \triangle 2\ H + \boxed{11}\ T + \bigcirc 11\ U$

$= \triangle 2\ H + \triangle 1\ H + \boxed{1}\ T + \boxed{1}\ T + \bigcirc 1\ U$

$= \triangle 2+1\ H + \boxed{1+1}\ T + \bigcirc 1\ U$

$= \triangle 3\ H + \boxed{2}\ T + \bigcirc 1\ U$

$= 321$

2. $365 + 176 = (\triangle\ H + \square\ T + \bigcirc\ U) + (\triangle\ H + \square\ T + \bigcirc\ U)$

$= \triangle \ldots+\ldots\ H + \boxed{\ldots+\ldots}\ T + \bigcirc \ldots+\ldots\ U$

$= \triangle\ H + \square\ T + \bigcirc\ U$

$= \triangle\ H + \triangle\ H + \square\ T + \square\ T + \bigcirc\ U$

$= \triangle \ldots+\ldots\ H + \boxed{\ldots+\ldots}\ T + \bigcirc\ U$

$= \triangle\ H + \square\ T + \bigcirc\ U$

$= \ldots\ldots\ldots\ldots$

3. $68 + 184 = (\triangle\ H + \square\ T + \bigcirc\ U) + (\triangle\ H + \square\ T + \bigcirc\ U)$

$= \triangle \ldots+\ldots\ H + \boxed{\ldots+\ldots}\ T + \bigcirc \ldots+\ldots\ U$

$= \triangle\ H + \square\ T + \bigcirc\ U$

$= \triangle\ H + \triangle\ H + \square\ T + \square\ T + \bigcirc\ U$

$= \triangle \ldots+\ldots\ H + \boxed{\ldots+\ldots}\ T + \bigcirc\ U$

$= \triangle\ H + \square\ T + \bigcirc\ U$

$= \ldots\ldots\ldots\ldots$

4. 78 + 148 = ($\triangle$ H + $\square$ T + $\bigcirc$ U) + ($\triangle$ H + $\square$ T + $\bigcirc$ U)

= $\triangle$(...+...) H + $\square$(...+...) T + $\bigcirc$(..+..) U

= $\triangle$ H + $\square$ T + $\bigcirc$ U

= $\triangle$ H + $\triangle$ H + $\square$ T + $\square$ T + $\bigcirc$ U

= $\triangle$(...+...) H + $\square$(...+...) T + $\bigcirc$ U

= $\triangle$ H + $\square$ T + $\bigcirc$ U

= ....

5. 246 + 354 = ($\triangle$ H + $\square$ T + $\bigcirc$ U) + ($\triangle$ H + $\square$ T + $\bigcirc$ U)

= $\triangle$(+) H + $\square$(+) T + $\bigcirc$(+) U

= $\triangle$ H + $\square$ T + $\bigcirc$ U

= $\triangle$ H + $\triangle$ H + $\square$ T + $\square$ T + $\bigcirc$ U

= $\triangle$(+) H + $\square$(+) T + $\bigcirc$ U

= $\triangle$ H + $\square$ T + $\bigcirc$ U

= ....

6. 476 + 285 = ($\triangle$ H + $\square$ T + $\bigcirc$ U) + ($\triangle$ H + $\square$ T + $\bigcirc$ U)

= $\triangle$(+) H + $\square$(+) T + $\bigcirc$(+) U

= $\triangle$ H + $\square$ T + $\bigcirc$ U

= $\triangle$ H + $\triangle$ H + $\square$ T + $\square$ T + $\bigcirc$ U

= $\triangle$(+) H + $\square$(+) T + $\bigcirc$ U

= $\triangle$ H + $\square$ T + $\bigcirc$ U

= ....

ADDITION OF 3 - DIGIT NUMBERS

(Column Method)

Let us add 385 and 249 by column method.

	H	T	U
	3	8	5
	2	4	9
	5	12	14
=	5	12	10 + 4
=	5	12 + 1	4
=	5	13	4
=	5	10 + 3	4
=	5 + 1	3	4
=	6	3	4
=	634		

EXERCISE

Work out the following :

1.

	H	T	U
	1	8	6
	3	5	7
	4	13	13
=	4	14	3
=	5	4	3
=	543		

2.

	H	T	U
	3	6	8
	4	5	4
	7	11	12
=			
=			
=	....		

3.

	H	T	U
	2	6	4
	3	9	6
=			
=			
=	....		

4.

	H	T	U
	3	5	7
	1	4	3
=			
=			
=	....		

5.

H	T	U
4	3	6
2	9	5
△	□	○
= △	□	○
= △	□	○

= ....

6.

H	T	U
2	9	7
1	0	8
△	□	○
= △	□	○
= △	□	○

= ....

7.

H	T	U
3	4	9
2	1	6
△	□	○
= △	□	○
= △	□	○

= ....

8.

H	T	U
2	8	5
3	4	6
△	□	○
= △	□	○
= △	□	○

= ....

Addition (Column method)

Addition by column method is done quickly as follows :

Example :

H	T	U
2	8	6
4	5	8
	□1	4

⟶

H	T	U
	□1	
2	8	6
4	5	8
		4

⟶

H	T	U
	1	
2	8	6
4	5	8
□1	4	4

⟶

H	T	U
△1	□1	
2	8	6
4	5	8
	4	4

⟶

H	T	U
△1	□1	
2	8	6
4	5	8
7	4	4

We write the above in a simple way :

H	T	U
△1	□1	
2	8	6
4	5	8
7	4	4

EXERCISE

Work out the following :

1.

H	T	U
△	▭	
1	4	7
2	3	4

2.

H	T	U
△	▭	
4	9	3
1	1	8

3.

H	T	U
△	▭	
4	2	8
3	8	3

4.

H	T	U
△	▭	
2	4	6
1	9	4

5.

H	T	U
△	▭	
2	4	6
1	3	4
1	5	3

6.

H	T	U
△	▭	
1	0	8
2	5	4
	4	6

7.

H	T	U
△	▭	
3	4	0
2	0	6
1	8	4

8.

H	T	U
△	▭	
2	3	3
1	6	2
1	3	8

9.

H	T	U
△	▭	
2	6	7
1	4	5
3	9	6

10.

H	T	U
△	▭	
3	4	7
2	6	8
3	5	6

EXERCISE

Work out the following in your note book:

1. 243 + 186

2. 438 + 264

3. 167 + 248

4. 352 + 188

5. 214 + 290

6. 143 + 234 + 356

7. 207 + 144 + 275

8. 348 + 548 + 107

9. 215 + 380 + 147

10. 322 + 166 + 277

SUBTRACTION OF 3 - DIGIT NUMBERS BY COLUMN METHOD

(with borrowing)

You know how to subtract one two digit number from another two digit number.

Let us now subtract 196 from 532.

H	T	U
5	3	2
1	9	6

→

H	T	U
△	☐ 2	⬭ 12
5	3	2
1	9	6

→

H	T	U
△	☐ 2	⬭ 12
5	3	2
1	9	6
		6

H	T	U
	☐ 12	
→ △ 4	☐ 2	⬭ 12
5	3	2
1	9	6
	3	6

→

H	T	U
	☐ 12	
△ 4	☐ 2	⬭ 12
5	3	2
1	9	6
3	3	6

We write the above in a simple way :

H	T	U
	☐ 12	
△ 4	☐ 2	⬭ 12
5	3	2
1	9	6
3	3	6

EXERCISE

Work out the following :

1.

H	T	U
	☐ 11	
△ 3	☐ 1	⬭ 15
4	2	5
− 1	3	7
2	8	8

2.

H	T	U
	☐	
△	☐	⬭
5	2	4
− 3	4	8

3.

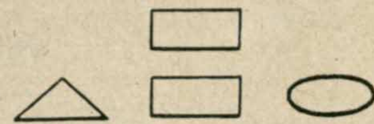
H	T	U



7	3	5
− 5	5	3

4.

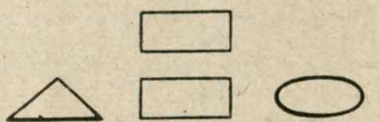
H	T	U



8	3	4
− 4	8	6

5.

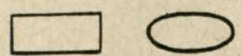
H	T	U



6	4	2
− 5	7	6

6.

H	T	U



6	2	3
− 5	1	9

EXERCISE

Work out the following in your note book:

1. 334 − 176

2. 583 − 394

3. 634 − 266

4. 538 − 249

5. 729 − 438

6. 648 − 569

7. 433 − 344

8. 536 − 388

9. 954 − 486

10. 814 − 326

VERBAL PROBLEMS

EXERCISE

1. In Gopal's class there are 28 boys and 14 girls.
How many pupils are there in the class ?

Number of boys = [28]

Number of girls = [14]

Total number of Pupils = [28 + 14]

$$\begin{array}{r} {}^{1} \\ 28 \\ 14 \\ \hline 42 \end{array}$$

= 42

2. In the petrol tank of a car, there was 38 litres of petrol. 45 litres of petrol was again put into the tank. How much petrol had the tank ?

Quantity of petrol in the beginning = [ ] litres

Quantity of petrol put again = [ ] litres

Total quantity of petrol = [...+...] litres

= .... litres

2. In Gandhi school there were 346 pupils in the beginning of the year. During the year 67 pupils joined the school. How many pupils are there at the end of the year ?

Number of pupils in the beginning of the Year = [ ]

Number of pupils joined = [ ]

Number of pupils at the end of the year = [ ]

= ....

4. In the school library there were 568 books. Now 146 books are bought and placed in the library. How many books are there in the library now ?

Number of books in the beginning = [ ]

Number of books bought = [ ]

Total number of books now = [ ]

= ....

5. Mathura is between Delhi and Agra. Distance between Delhi and Mathura is 144 Kilometres. Distance between Mathura and Agra is 48 Kilometres. What is the distance between Delhi and Agra ?

Distance between Delhi and Mathura = ☐ Kilometres
Distance between Mathura and Agra = ☐ Kilometres
Distance between Delhi and Agra = ☐ Kilometres
= .... Kilometres.

6. Gopal went for shopping. He bought clothes for Rs. 234 and toys for Rs. 126. How much did he spend on that day ?

Amount spent for clothing = Rs. ☐
Amount spent for toys = Rs. ☐
Total amount spent = Rs. ☐
= Rs. ....

7. In a school library there were 537 books. Of these 23 are spoiled. How many books are in good condition ?

Total number of books = 537
Number of books spoiled = 23
Number of books in good condition = 537 − 23

$$\begin{array}{r} 537 \\ 23 \\ \hline 514 \end{array}$$

= 514

8. Ranjit singh is a farmer. This year he got 260 bags of wheat. He sold 75 bags. How many bags are remaining with him now ?

Total number of bags = ☐
Number of bags sold = ☐
Number of bags left = ☐
= ....

9. Mr. Kumar took Rs. 830 from Mr. Singh as a loan. He paid Rs. 356. How much has he to pay yet ?

Amount of loan taken = Rs. ☐
Amount paid = Rs. ☐
Amount to be paid = Rs. ☐
= ....

10. Nagpur is between Delhi and Madras

Distance between Delhi and Madras is 2188 km.

Distance between Delhi and Nagpur is 109 km.

What is the distance between Madras and Nagpur ?

Distance between Delhi and Madras = ☐ km.

Distance between Delhi and Nagpur = ☐ km.

Distance between Madras and Nagpur = ☐ km.

= .... km.

11. In a garden there are neem trees and mango trees, 543 in all. There are 57 neem trees. How many mango trees are there ?

Total number of trees = ☐

Number of neem trees = ☐

Number of Mango trees = ☐

= ....

EXERCISE

Work out the following Problems in your note book.

1. In a school library there are 328 English books and 138 Hindi books. How many books are there in the school library ?
2. There were 500 litres of petrol in a tank. 126 litres of petrol was sold away. What is the amount of petrol in the tank now ?
3. In a factory there are 826 workers. Of these 658 are men. How many women workers are there ?
4. A trolly can carry a maximum weight of 125 kg. Can we put two boxes one weighing 68 kg. and the other 64 kg ?
5. Shankar's weight is 104 kg and Mohan's weight is 92 kg. Who is heavier ? By how much ?
6. Distance between Bombay and Delhi is 1542 km.
   Distance between Nagpur and Delhi is 1095 km.
   Distance between Nagpur and Bombay is 837 km.
   Is Nagpur on the way from Delhi to Bombay ?

7. In a garden there are 48 mango trees. The number of orange trees is 10 more than the mango trees. How many trees are there in the garden ?

8. The price of a Radio is Rs. 260. Excise duty is Rs. 75 and Sale tax is Rs. 26. How much should you pay for this Radio ?

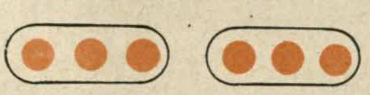
9. Mohan kept Rs. 650 in a bank for a year. At the end of the year he got Rs. 735. How much more did he get at the end of the year ?

10. Raghu, Gopi and Syam are reading in a school. The marks they got in the examination are as below :

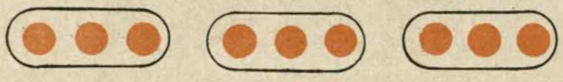
	Eng.	Maths.	G. Science	Social Studies
Raghu	48	32	50	26
Gopi	51	15	32	40
Syam	38	50	46	39

To pass the examination one should not get less than 25 in any subject and he should not get less than 160 marks in all the subjects. Who passed and who failed ?

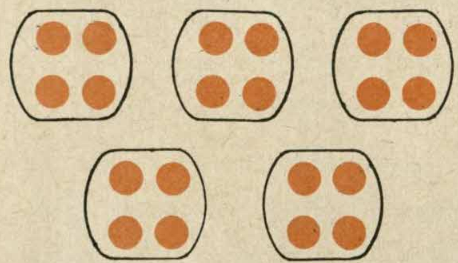
MULTIPLICATION



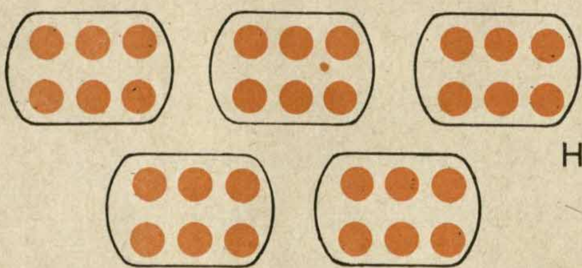
How many dots ? Two 3's. That is 3+3.



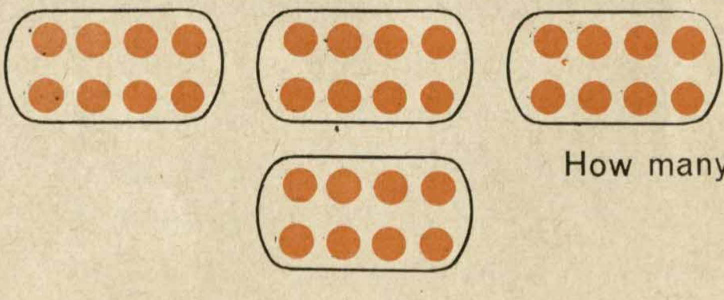
How many dots ? Three 3's. That is 3+3+3



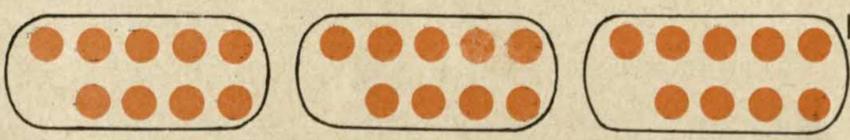
How many dots ? Five 4's . That is 4+4+4+4+4.



How many dots ? .... That is ....



How many dots ? .... That is ....



How many dots ? ....

That is ....

We write two 3's as 2×3, five 6's as 5×6 and so on. So we have

two 3's $= 2 \times 3 = 3 + 3$.

four 3's $= 4 \times 3 = 3+3+3+3$.

We call 4×3 as the Product of 4 and 3

EXERCISE

Write the following in the form of Products.

1. $7 + 7 + 7 + 7 = \boxed{4 \times 7}$
2. $8 + 8 + 8 + 8 + 8 + 8 + 8 = \square$
3. $5 + 5 + 5 + 5 + 5 + 5 = \square$
4. $10 + 10 + 10 + 10 + 10 + 10 + 10 + 10 = \square$
5. $12 + 12 + 12 + 12 = \square$
6. $6 + 6 + 6 + 6 + 6 + 6 = \square$
7. $14 + 14 + 14 + 14 + 14 + 14 = \square$
8. $9 + 9 + 9 + 9 + 9 + 9 + 9 + 9 = \square$
9. $15 + 15 + 15 + 15 + 15 = \square$
10. $46 + 46 + 46 + 46 + 46 + 46 = \square$

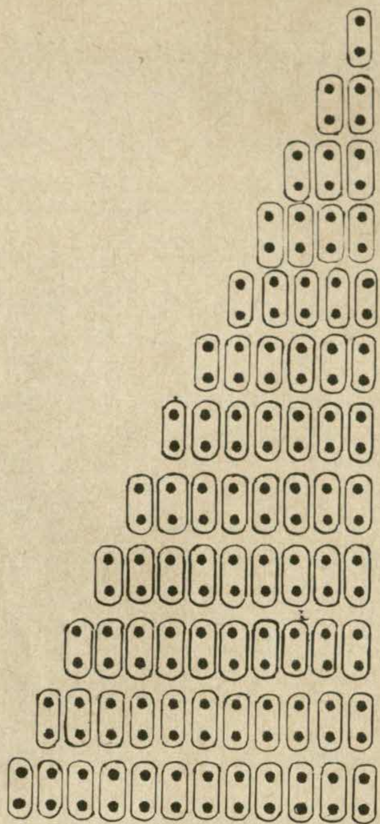
EXERCISE

Write the following as sum of numbers.

1. $6 \times 4 = 4 + 4 + 4 + 4 + 4 + 4$
2. 4×8 = ...
3. 7×5 = ...
4. 6×10 = ...
5. 8×8 = ...
6. 10×2 = ...
7. 5×15 = ...
8. 9×6 = ...
9. 4×7 = ...
10. 7×4 = ...

MULTIPLICATION FACTS

See the Pattern and fill in the boxes (Multiples of 2)



1 × 2 = 2

2 × 2 = 2 + 2 = 4

3 × 2 = 4 + 2 = 6

4 × 2 = 6 + □ = □

5 × 2 = □ + □ = □

6 × 2 = □ + □ = □

7 × 2 = □ + □ = □

8 × 2 = □ + □ = □

9 × 2 = □ + □ = □

□ × □ = □ + □ = □

□ × □ = □ + □ = □

□ × □ = □ + □ = □

Multiples of 3

••• 1 × 3 = 3

••• ••• 2 × 3 = 3 + 3 = 6

••• ••• ••• 3 × 3 = 6 + 3 = 9

••• ••• ••• ••• 4 × 3 = 9 + □ = □

••• ••• ••• ••• ••• 5 × 3 = □ + □ = □

••• ••• ••• ••• ••• ••• 6 × 3 = □ + □ = □

••• ••• ••• ••• ••• ••• ••• 7 × 3 = □ + □ = □

••• ••• ••• ••• ••• ••• ••• ••• 8 × 3 = □ □ = □

••• ••• ••• • • ••• ••• ••• ••• ••• 9 × 3 = □ + □ = □

••• ••• ••• ••• ••• ••• ••• ••• ••• ••• 10 × 3 = □ + □ = □

••• ••• ••• ••• ••• ••• ••• ••• ••• ••• ••• 11 × 3 = □ + □ = □

••• ••• ••• ••• ••• ••• ••• ••• ••• ••• ••• ••• 12 × 3 = □ + □ = □

Multiples of 4

1 × 4 = 4
2 × 4 = 4 + 4 = 8
3 × 4 = 8 + 4 = 12
4 × 4 = [12] + □ = □
5 × 4 = □ + □ = □
6 × 4 = □ + □ = □
7 × 4 = □ + □ = □
8 × 4 = □ + □ = □
9 × 4 = □ + □ = □
10 × 4 = □ + □ = □
11 × 4 = □ + □ = □
12 × 4 = □ + □ = □

Multiples of 5

1 × 5 = 5
2 × 5 = 5 + 5 = 10
3 × 5 = 10 + 5 = 15
4 × 5 = □ + □ = □
5 × 5 = □ + □ = □
6 × 5 = □ + □ = □
7 × 5 = □ + □ = □
□ = □ + □ = □
□ = □ + □ = □
□ = □ + □ = □
□ = □ + □ = □
□ = □ + □ = □

Multiples of 6

1 × 6 = 6
2 × 6 = 6 + 6 = 12
3 × 6 = 12 + □ = □
4 × 6 = □ + □ = □
5 × 6 = □ + □ = □
□ = □ + □ = □
□ = □ + □ = □
□ = □ + □ = □
□ = □ + □ = □
□ = □ + □ = □
□ = □ + □ = □

Multiples of 7

1 × 7 = 7
2 × 7 = 7 + 7 = 14
3 × 7 = 14 + □ = □
4 × 7 = □ + □ = □
□ = □ + □ = □
□ = □ + □ = □
□ = □ + □ = □
□ = □ + □ = □
□ = □ + □ = □
□ = □ + □ = □
□ = □ + □ = □

Multiples of 8

1 × 8 = 8
2 × 8 = 8 + 8 = 16

Multiples of 9

1 × 9 = 9
2 × 9 = 9 + 9 = 18

3 × 8 = 16 + □ = □
4 × 8 = □ + □ = □
5 × 8 = □ + □ = □
□ = □ + □ = □
□ = □ + □ = □
□ = □ + □ = □
□ = □ + □ = □
□ = □ + □ = □
□ = □ + □ = □
□ = □ + □ = □

3 × 9 = 18 + □ = □
□ = □ + □ = □
□ = □ + □ = □
□ = □ + □ = □
□ = □ + □ = □
□ = □ + □ = □
□ = □ + □ = □
□ = □ + □ = □
□ = □ + □ = □
□ = □ + □ = □

Multiples of 10

1 × 10 = 10
2 × 10 = 10 + 10 = 20
3 × 10 = 20 + □ = □
4 × 10 = □ + □ = □
5 × 10 = □ + □ = □
□ = □ + □ = □

□ = □ + □ = □
□ = □ + □ = □
□ = □ + □ = □
□ = □ + □ = □
□ = □ + □ = □
□ = □ + □ = □

Multiplication Table

Let us put the multiplication facts in the form of a table.

×	1	2	3	4	5	6	7	8	9	10	11	12
1	1	2	3	4	5	6	7	8	9	10	11	12
2	2	4	6	8	10	12	14	16	18	20	22	24
3	3	6	9	12	15	18	21	24	27	30	33	36
4	4	8	12	16	20	24	28	32	36	40	44	48
5	5	10	15	20	25	30	35	40	45	50	55	60
6	6	12	18	24	30	36	42	48	54	60	66	72
7	7	14	21	28	35	42	49	56	63	70	77	84
8	8	16	24	32	40	48	56	64	72	80	88	96
9	9	18	27	36	45	54	63	72	81	90	99	108
10	10	20	30	40	50	60	70	80	90	100	110	120

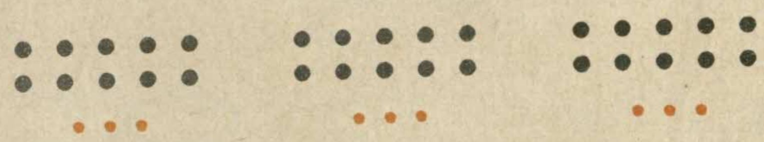
EXERCISE

Fill in the boxes with the help of Multiplication table.

1. $4 \times \square = 32$
2. $6 \times \square = 54$
3. $\square \times 6 = 30$
4. $\square \times 7 = 56$
5. $\square \times 8 = 96$
6. $10 \times \square = 70$
7. $\square \times 9 = 108$
8. $\boxed{11} \times \square = 77$
9. $\square \times 9 = 45$
10. $\square \times 9 = 99$
11. $\square \times 6 = 72$
12. $9 \times \square = 63$

Multiplication of two-digit-number by one-digit number

Let us find 3×13



There are 3×13 dots in all.

There are 3×10 black dots and 3×3 red dots.

So $3 \times 13 = 3 \times 10 + 3 \times 3$

$= 30 + 9$

$= 39$

Let us find 4×16



There are 4×16 dots in all.

There are 4×10 red dots and 4×6 black dots.

So $4 \times 16 = 4 \times 10 + 4 \times 6$

$= 40 + 24$

$= 64$

Work out :

1. $5 \times 17 = \boxed{5 \times 10} + (5 \times 7)$

$= \boxed{50} + (35)$

$= 85$

2. $6 \times 14 = \boxed{} + ()$

$= \boxed{} + ()$

$=$ ....

3. $3 \times 15 = \boxed{} + ()$

$= \boxed{} + ()$

$=$ ....

4. $7 \times 16 = \boxed{} + ()$

$= \boxed{} + ()$

$=$ ....

5. $8 \times 17 = \boxed{} + ()$

$= \boxed{} + ()$

$=$ ....

6. $9 \times 19 = \boxed{} + ()$

$= \boxed{} + ()$

$=$ ....

EXERCISE

Work out the following in your notebook

1. 3×18

2. 4×18

3. 4×19

4. 7×18

5. 5×18

6. 8×16

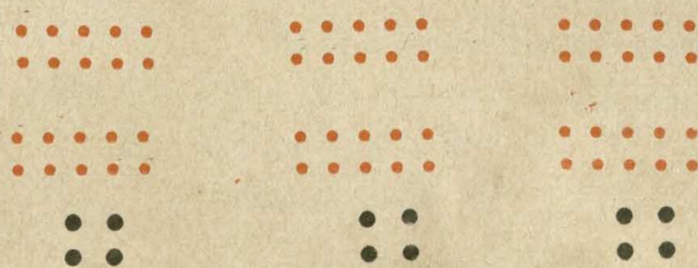
7. 7×17

8. 5×19

9. 6×14

10. 7×16

There are 3×24 dots in all.



How many tens (red dots) are there? 3×2

How many units (black dots) are there? 3×4

So 3×24 = (3×2) Tens + (3×4) Units

= 6 Tens + 12 Units

= 6 Tens + 1 Ten + 2 Units

= 7 Tens + 2 Units

= 72.

EXERCISE

1. 4×34
= △[4 × 3] T + □[4 × 4] U
= △[12] T + □[16] U
= △[12] T + △[1] T + □[6] U
= △[13] T + □[6] U
= 136

2. 5×43
= △ T + □ U
= △ T + □ U
= △ T + △ T + □ U
= △ T + □ U
= ....

3. 4×56
= △ T + □ U
= △ T + □ U
= △ T + △ T + □ U
= △ T + □ U
= ....

4. 7×43
= △ T + □ U
= △ T + □ U
= △ T + △ T + □ U
= △ T + □ U
= ....

5. 8×25
= △ T + □ U
= △ T + □ U

= △ T + △ T + □ U

= △ T + □ U

= ....

6. 6 × 38 = △ T + □ U

= △ T + □ U

= △ T + △ T + □ U

= △ T + □ U

= ....

EXERCISE

Work out the following in your notebook.

1. 5 × 37
2. 3 × 46
3. 6 × 28
4. 3 × 57
5. 8 × 41
6. 3 × 60
7. 5 × 38
8. 9 × 52
9. 7 × 80
10. 4 × 51

MULTIPLICATION ALGORITHM

(without carrying)

4 × 32

= (4 × 3) T + [4 × 2] U

= (12) T + [8] U

= 128

T	U
3	2
	× 4
(4 × 3)	[4 × 2]
= (12)	[8]

= 128

EXERCISE

Work out the following :

1.

T	U
2	3
	× 3
(3 × 2)	[3 × 3]
= (6)	[9]

= 69

2.

T	U
4	0
	× 5
(... × ...)	[... × ...]
= ( )	[ ]

= ....

3.

T	U
4	2
	× 3
(... × ...)	[... × ...]
= ( )	[ ]

= ....

4.

T	U
5	1
	× 7
(... × ...)	[... × ...]
= ( )	[ ]

= ....

5.

T	U
5	2
	× 4
(... × ...)	[... × ...]
= ( )	[ ]

= ....

6.

T	U
6	3
	× 3
(... × ...)	[... × ...]
= ( )	[ ]

= ....

EXERCISE

Work out the following in your notebook.

1. 4 × 32

2. 5 × 41

3. 6 × 50

4. 3 × 43

5. 4 × 62

6. 7 × 31

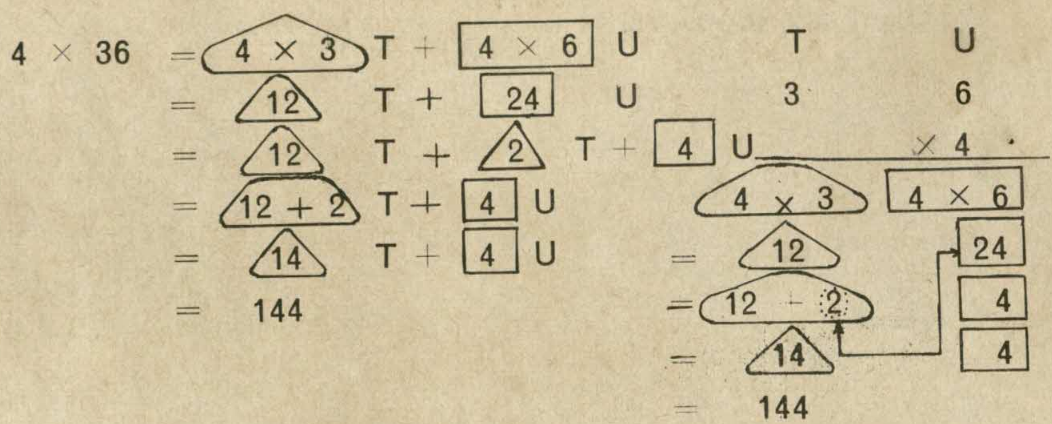
7. 8 × 51

8. 9 × 40

9. 4 × 22

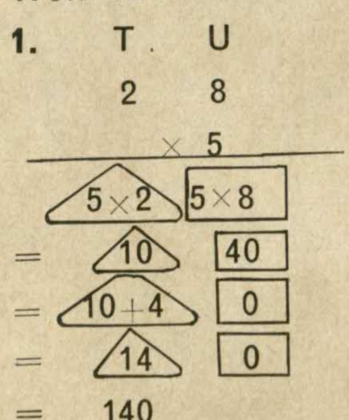
10. 3 × 33

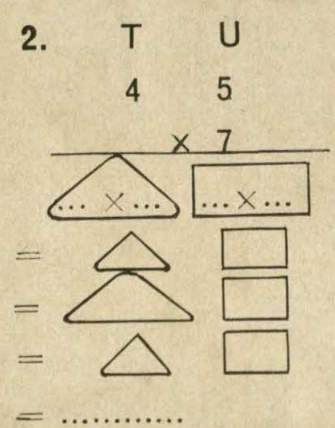
Multiplication (with carrying)

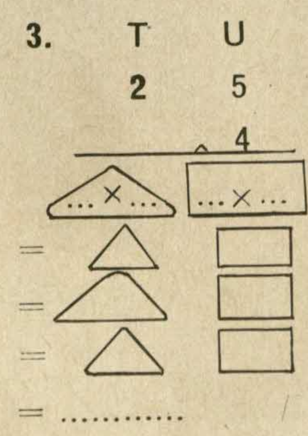


EXERCISE

Work out the following :







4.

T	U
4	8
	× 8
△ ...×...	□ ...×...
= △	□
= △	□
= △	□
=	

5.

T	U
5	6
	× 9
△ ...×...	□ ...×...
= △	□
= △	□
= △	□
=	

6.

T	U
7	6
	× 6
△ ...×...	□ ...×...
= △	□
= △	□
= △	□
=	

The method of multiplication you learn above is put in a simpler form as shown below :

T	U
3	6
	× 4 →
24	

→

T	U
△2	
3	6
	× 4
	4

→

T	U
△2	
3	6
	× 4
(4×3+ 2)	4

T	U
△2	
3	6
	× 4
14	4

EXERCISE

Work out the following :

1.

T	U
△2	
3	4
	× 7
23	8

2.

T	U
△	
4	5
	× 8

3.

T	U
△	
5	6
	× 5

4.

T	U
△	
7	6
	× 7

5.

T	U
△	
6	7
	× 5

6.

T	U
△	
5	8
	× 6

7.

T.	U
△	
4	9
	× 9

8.

T	U
△	
3	8
	× 8

9.

T	U
△	
6	6
	× 4

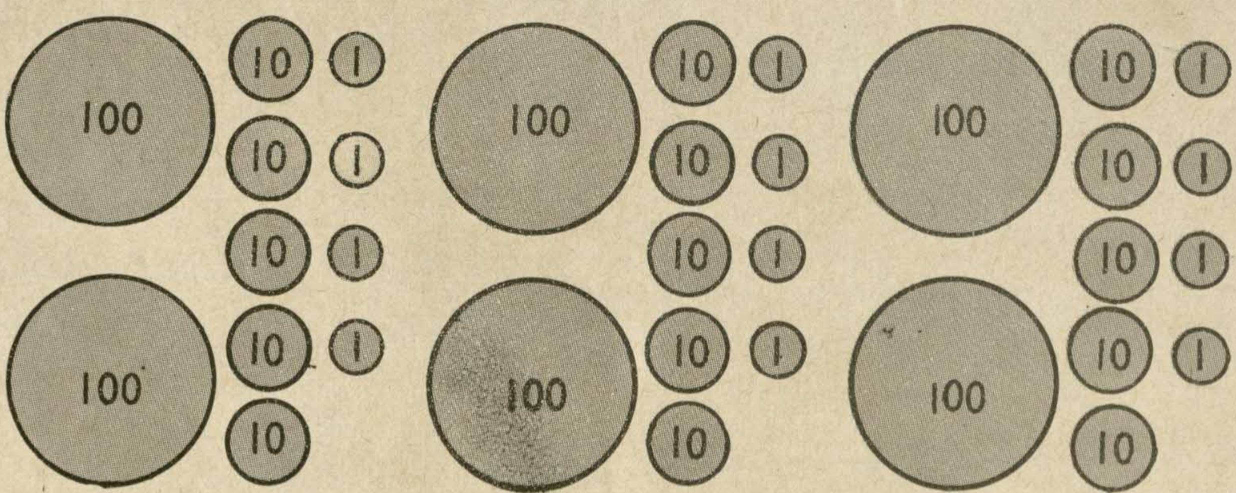
10.

T	U
△	
4	7
	× 9

Work out the following in your notebook.

1. 26 × 8
2. 34 × 7
3. 48 × 4
4. 56 × 7
5. 39 × 6
6. 45 × 4
7. 68 × 8
8. 35 × 5
9. 88 × 3
10. 49 × 2

Multiplication of 3-digit numbers by a single digit number.



254 Paise 254 Paise 254 Paise

How many paise do you see in the figure ? 3 × 254.

How many hundreds ? 3 × 2 hundreds

How many tens ? 3 × 5 tens.

How many Units ? 3 × 4 Units.

So we see :

$$3 \times 254 = (3 \times 2)\,H + (3 \times 5)\,T + (3 \times 4)\,U$$

Now

3 × 254 = △(3×2) H + □(3 × 5) T + ◯(3 × 4) U
= △(6) H + □(15) T + ◯(12) U
= △(6) H + □(15) T + □(1) T + ◯(2) U
= △(6) H + □(16) T + ◯(2) U
= △(6) H + △(1) H + □(6) T + ◯(2) U
= △(7) H + □(6) T + ◯(2) U
= 762

EXERCISE

Work out the following.

1. 5 × 126 = △(5×1) H + □(5 × 2) T + ◯(5×6) U
= △(5) H + □(10) T + ◯(30) U
= △(5) H + □(10) T + □(3) T + ◯(0) U
= △(5) H + □(13) T + ◯(0) U
= △(5) H + △(1) H + □(3) T + ◯(0) U
= △(6) H + □(3) T + ◯(0) U
= 630

2. 6 × 308 = △(...×...) H + □(...×...) T + ◯(...×...) U
= △( ) H + □( ) T + ◯( ) U
= △( ) H + □( ) T + □( ) T + ◯( ) U
= △( ) H + □( ) T + ◯( ) U
= △( ) H + △( ) H + □( ) T + ◯( ) U
= △( ) H + □( ) T + ◯( ) U
= ....

3. 4 × 234 = △(..×..) H + □(...×...) T + ○(...×...) U
= △ H + □ T + ○ U
= △ H + □ T + □ T + ○ U
= △ H + □ T + ○ U
= △ H + △ H + □ T + ○ U
= △ H + □ T + ○ U
= ....

4. 3 × 307 = △(..×..) H + □(...×...) T + ○(...×...) U
= △ H + □ T + ○ U
= △ H + □ T + □ T + ○ U
= △ H + □ T + ○ U
= △ H + △ H + □ T + ○ U
= △ H + □ T + ○ U
= ....

5. 6 × 132 = △(..×..) H + □(...×..) T + ○(...×...) U
= △ H + □ T + ○ U
= △ H + □ T + □ T + ○ U
= △ H + □ T + ○ U
= △ H + △ H + □ T + ○ U
= △ H + □ T + ○ U
= ....

6. 7 × 109 = △(..×..) H + □(..×...) T + ○(...×...) U
= △ H + □ T + ○ U
= △ H + □ T + □ T + ○ U
= △ H + □ T + ○ U
= △ H + △ H + □ T + ○ U
= △ H + □ T + ○ U
= ....

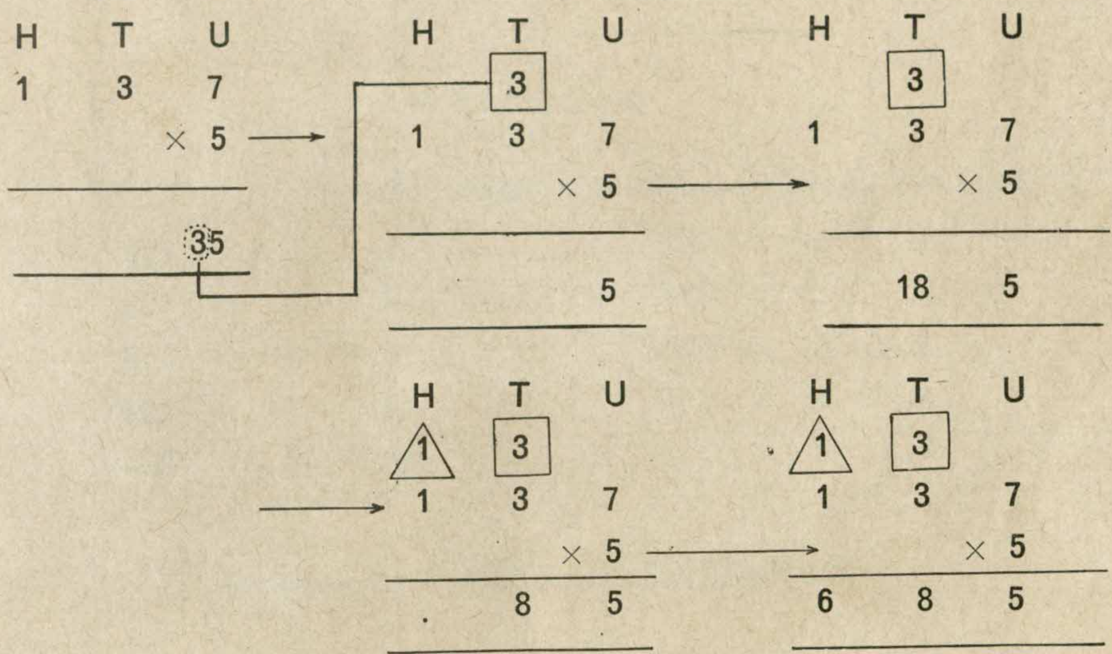
EXERCISE

Work out the following in your notebook.

1.	3 × 147	**6.**	3 × 364
2.	5 × 136	**7.**	3 × 264
3.	4 × 208	**8.**	5 × 145
4.	7 × 125	**9.**	9 × 108
5.	6 × 146	**10.**	8 × 118

Multiplication of 3-digit number by one-digit number

Let us multiply 137 by 5.



EXERCISE

Work out the following :

1.

H	T	U
△1	□1	
2	4	6
		× 3
7	3	8

2.

H	T	U
△	□	
1	2	6
		× 4

3.

H	T	U
△	□	
2	0	9
		× 4

4.

H	T	U
△	□	
1	1	8
		× 7

5.

H	T	U
△	□	
1	0	6
		× 8

6.

H	T	U
△	□	
	9	4
		× 8

EXERCISE

Work out the following in your note book.

1. 3 × 216

2. 2 × 358

3. 6 × 132

4. 5 × 148

5. 7 × 117

6. 8 × 109

7. 9 × 106

8. 4 × 176

9. 2 × 496

10. 3 × 293

Multiplication by a two digit-number

Lut us multiply 32 by 26.

Now 26 × 32 = △(26 × 3) T + □(26 × 2) U

= △(78) T + □(52) U

= △(78) T + △(5) T + □(2) U

= △(83) T + □(2) U

= ○(8) H + △(3) T + □(2) U

= 832

EXERCISE

Work out the following.

1. 24 × 35 = (24 × 3) T + [24 × 5] U
= △72 T + [120] U
= △72 T + △12 T + [0] U
= △84 T + [0] U
= ◯8 H + △4 T + [0] U
= 840

2. 45 × 62 = (... × ...) T + [... × ...] U
= △ T + □ U
= △ T + △ T + □ U
= △ T + □ U
= ◯ H + △ T + □ U
= ....

3. 36 × 41 = (... × ...) T + [... × ...] U
= △ T + □ U
= △ T + △ T + □ U
= △ T + □ U
= ◯ H + △ T + □ U
= ....

4. 29 × 73 = (... × ...) T + [... × ...] U
= △ T + □ U
= △ T + △ T + □ U
= △ T + □ U
= ◯ H + △ T + □ U
= ....

5. 45 × 29 = (... × ...) T + [... × ...] U
= △ T + □ U
= △ T + △ T + □ U
= △ T + □ U
= ◯ H + △ T + □ U
= ....

6. 56 × 65 = (…:×…) T + […×…] U

= △ T + □ U

= △ T + △ T + □ U

= △ T + □ U

= ◯ H + △ T + □ U

= …………

EXERCISE

Work out the following in your note book.

1.	24 × 32				**6.**	43 × 48	
2.	61 × 48				**7.**	36 × 52	
3.	34 × 41				**8.**	40 × 68	
4.	38 × 63				**9.**	43 × 28	
5.	45 × 70				**10.**	26 × 58	

There is one more method of multiplication by a two digit number. Let us multiply 35 by 23.

23 × 35 = 23 × (30 + 5)

= 23 × 30 + 23 × 5

= (23 × 3) T + 23 × 5

= 69 T + 23 × 5

= 690 + 115

= 805

EXERCISE

Work out the following.

1. 16 × 56 = 16 × (50 + 6)

= 16 × 50 + 16 × 6

= (16 × 5) T + 16 × 6

= 80 T + 96

= 800 + 96

= 896

2. 25 × 38 = — × (— + —)
= — × — + — × —
= (— × —) T + — × —
= — T + —
= — + —
= ....

3. 42 × 65 = — × (— + —)
= — × — + — × —
= (— × —) T + — × —
= — T + —
= — + —
= ....

4. 37 × 53 = — × (— + —)
= — × — + — × —
= (— × —) T + — × —
= — T + —
= — + —
= ....

5. 34 × 46 = — × (— + —)
= — × — + — × —
= (— × —) T + — × —
= — T + —
= — + —
= ....

EXERCISE

Work out the following in your note book.

1. 22 × 48
2. 56 × 28
3. 47 × 18
4. 60 × 32
5. 38 × 47
6. 26 × 44
7. 15 × 48
8. 27 × 37
9. 34 × 38
10. 41 × 46

Multiplication can be done in a shorter form as shown below :

$$
\begin{aligned}
34 \times 46 &= 34 \times (40 + 6) \\
&= 34 \times 40 + 34 \times 6 \\
&= (34 \times 4)\ T + 34 \times 6 \\
&= 136\ T + 204 \\
&= 1360 + 204 \\
&= 1564
\end{aligned}
$$

Th	H	T	U	
0	0	3	4	
			× 46	
	2	0	4	→ 6 × 34
1	3	6	0	→ (34 × 4) T
				→ 34 × 4 (boxed 1 3 6)
1	5	6	4	

EXERCISE

Work out the following.

1.

Th	H	T	U	
0	0	2	6	
			× 23	
0	0	7	8	→ 3 × 26
	5	2	0	→ (2 × 26) T
	5	9	8	

2.

Th	H	T	U
0	0	4	1
			× 38

3.

Th	H	T	U
0	0	3	7
			× 26

4.

Th	H	T	U
0	0	2	8
			× 36

5.

Th	H	T	U
0	0	7	2
			× 25

6.

Th	H	T	U
0	0	5	3
			× 38

EXERCISE

Work out the following in your note book.

1.	23 × 34	6.	71 × 35
2.	42 × 56	7.	66 × 41
3.	34 × 43	8.	37 × 56
4.	40 × 52	9.	34 × 67
5.	30 × 60	10.	47 × 63

EXTENDING NUMBERS

EXERCISE

Read the following numbers :

1. 857, 203, 179, 400, 710, 999, 100.

2. 1000 = One thousand, 5000 = Five thousand

7000, 2000, 9000, 3000, 8000, 10000.

3. Read the numbers from the following table and write in words :

Th	H	T	U	Numbers in words
8	2	3	7	Eight thousand two hundred thirty seven.
9	0	4	8	
7	1	0	3	
5	8	6	0	
9	9	9	9	

4. Write the following numbers in figures in the table.

Numbers in Words.	Th	H	T	U
One thousand four hundred two	1	4	0	2
Three thousand one				
Seven thousand and nine hundred seventy seven				
Nine thousand sixty nine				
Five thousand three hundred four.				

5. Write all the numbers between :

7046 and 7052	7047, 7048, 7049, 7050, 7051.
4364 and 4370	
9820 and 9826	

Place Value

EXERCISE

Write in the expanded form :

1. 7923 = 7000 + 900 + 20 + 3.

We can also write it as : 7 × 1000 + 9 × 100 + 2 × 10 + 3

2. 9002 = ...+......+......+...... = 9 ×......+ 0×...+0×......+......
3. 4650 = ...+......+......+...... = 4 ×......+ 6×...+5×......+......
4. 6831 = ...+......+......+......=..............+......+...... ......+......
5. 8409 = ...+......+......+......=..............+......+...... ......+......

Write in the short form :

6. 1000 + 300 + 0 + 5 = 1305
7. 4000 + 700 + 80 + 9 = ☐
8. 9000 + 0 + 70 + 4 = ☐
9. 6000 + 500 + 40 + 6 = ☐
10. 3×1000 + 4×100 + 5×10 + 6 = ☐
11. 7×1000 + 5×100 + 3×10 + 1 = ☐
12. 4×1000 + 2×100 + 6×10 + 8 = ☐
13. 8×1000 + 9×100 + 5×10 + 3 = ☐
14. 8000 + 200 + 30 + 7 = ☐
15. 9×1000 + 2×100 + 3×10 + 7 = ☐

What number is represented by :

16. 8 in 8327 8000
17. 9 in 6934 ...... ☐
18. 6 in 5069 ...... ☐
19. 2 in 3142 ...... ☐

We learn that :

Place value of 8 in 8327 is 8000 and **Face value** of 8 is always 8.

Place value of 0 in 5069 is 0×100 = 0 and the face value is also 0.

EXERCISE

Write the place value of each digit.

1. In 6023

Place value of 6 = 6 Th = 6000

Place value of 0 = 0H = 0

Place value of 2 = 2T = 20

Place value of 3 = 3U = 3

2. In 7108

Place value of 7 = ...

Place value of 1 = ...

Place value of 0 = ...

Place value of 8 = ...

3. Write the place values of 5 in 5555.

Th	H	I	U
5	5	5	5
↓	↓	↓	↓
5000			

4. Write the place values of each digit in 7373.

Th	H	T	U
7	3	7	3
↓ ____	↓ ____	↓ ____	↓ ____

Work out in your note-book :

5. Place value of 6 in 6302, 2036, 3062, 3620.

6. Place value and face value of 0 in 2302.

7. Place value of each 4 in 444.

***8.** Change the places of digits in 123 and make as many numbers as you can, using each digit only once.

***9.** Interchange the places of 5 and 3 in 2513. Find the place values of 5 and 3 in the new number.

10. Find the place values of 7 in 8076 and 8706.

See that :

The place value of a digit changes as its place changes.

Greater and Smaller Numbers

EXERCISE

1. Which is greater: 234 or 378 ? [ ]
2. Which is smaller 783 or 792 ? [ ]
3. Is it true that $987 > 989$? [No]
4. Is it true that $409 < 490$? [ ]
5. Is it true that $837 > 789$? [ ]
6. Put the following numbers in the increasing order :

   708, 499, 897, 89, 1, 37, 283

   ____, ____, ____, ____, ____, ____, ____
7. Put the following numbers in the decreasing order :

   32, 0, 521, 72, 8, 999, 740

   ____, ____, ____, ____, ____, ____, ____

Example : Compare the numbers 8703 and 7986.

8703 has 8 thousands and 7986 has only 7 thousands, so $8703 > 7986$

EXERCISE

1. Compare 8372 and 8591 [$8591 > 8372$]
2. Which is greater 4034 or 999 ? [ ]
3. Which is smaller 2356 or 2729 ? [ ]
4. Arrange the following numbers in the decreasing order :

   4320, 7328, 559, 9302, 28, 735.

   $9302 > 7328 > 4320 > 735 > 559 > 28$
5. Arrange in increasing and decreasing order, using symbols :

   539, 1234, 99, 4567, 7003

   Increasing order ...... [$<$] ...... [ ] ...... [ ] ...... [ ] ......

   Decreasing order ...... [ ] ...... [ ] ...... [ ] ...... [ ] ......
6. Write the greatest number of 4 digits and also the least number of 5 digits.

   Greatest number = [ ] Least number = [ ]

7. Put, in the box, $<$ or $>$ correctly :

5037 [$<$] 6110;	3028 [ ] 2999
8324 [ ] 7341;	9020 [ ] 9019

8. Put the number in the box which lies between :

2198, [2199] , 3000	3999, [ ] 4001;	8059, [ ] 8061;
7566, [ ] 7564;	9032, [ ] 9030;	4541, [ ] 4539.

9. Write the greatest number of 4 digits using the digits 4, 3, 8, 0.

10. Write the least number of 4 digits using the digits 4, 3, 8, 0.

Properties of Addition and Multiplication

EXERCISE

Join the two sets into one set and count the dolls in the new set :

1.

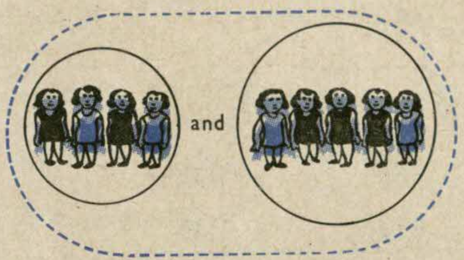


Fig.

$4 + 5 = \square$

2.

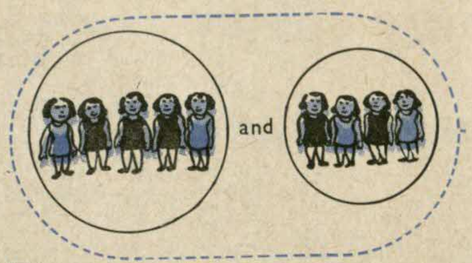


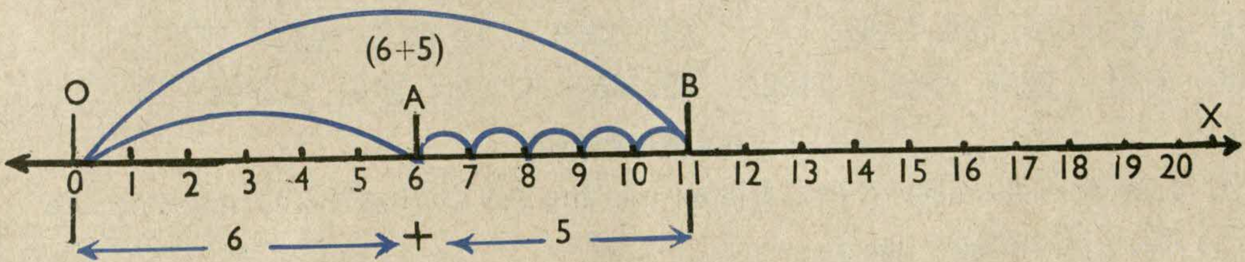
Fig.

$5 + 4 = \square$

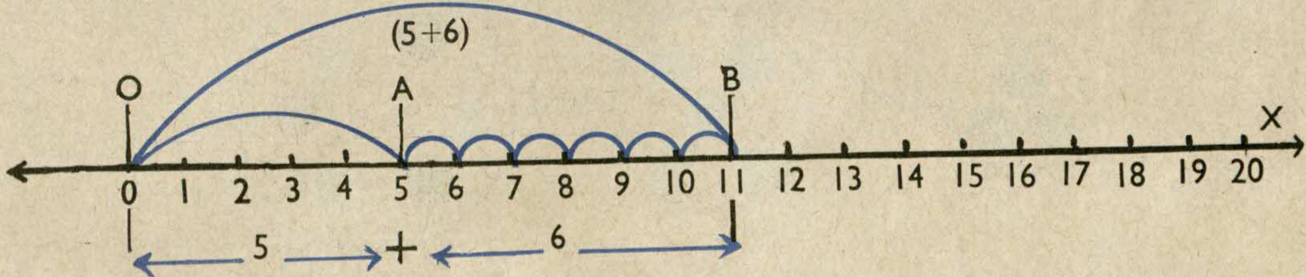
$\boxed{4 + 5 = 5 + 4}$

Add on the number line :

3. 6 and 5

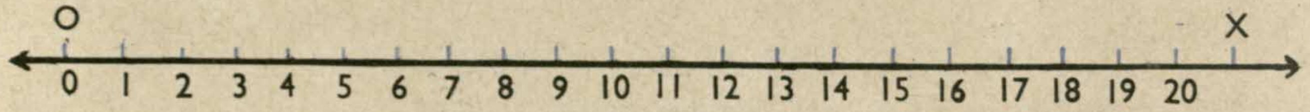


4. 5 and 6.



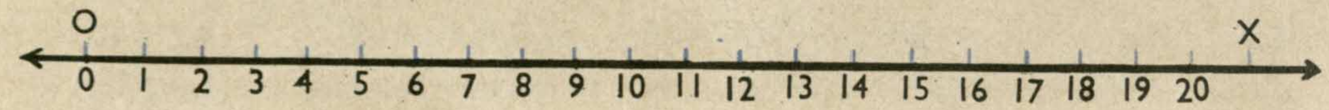
From (3) and (4), $\boxed{6 + 5 = 5 + 6}$

5. 8 and 7.



$8 + 7 = \square$

6. 7 and 8.



$7 + 8 = \square$

Is $8 + 7 = 7 + 8$?

Add the numbers and see the results:

7. $\begin{array}{r} 53 \\ +\ 29 \\ \hline \\ \hline \end{array}$ $\quad$ $\begin{array}{r} 29 \\ +\ 53 \\ \hline \\ \hline \end{array}$

8. $\begin{array}{r} 235 \\ +\ 978 \\ \hline \\ \hline \end{array}$ $\quad$ $\begin{array}{r} 978 \\ +\ 235 \\ \hline \\ \hline \end{array}$

9. $\begin{array}{r} 8705 \\ +\ 976 \\ \hline \\ \hline \end{array}$ $\quad$ $\begin{array}{r} 976 \\ +\ 8705 \\ \hline \\ \hline \end{array}$

10. $\begin{array}{r} 6521 \\ +\ 1149 \\ \hline \\ \hline \end{array}$ $\quad$ $\begin{array}{r} 1149 \\ +\ 6521 \\ \hline \\ \hline \end{array}$

Work out in your notebook and see the results :

11. $28 + 32$; $32 + 28$

12. $526 + 967$; $967 + 526$

13. $826 + 369$; $369 + 826$

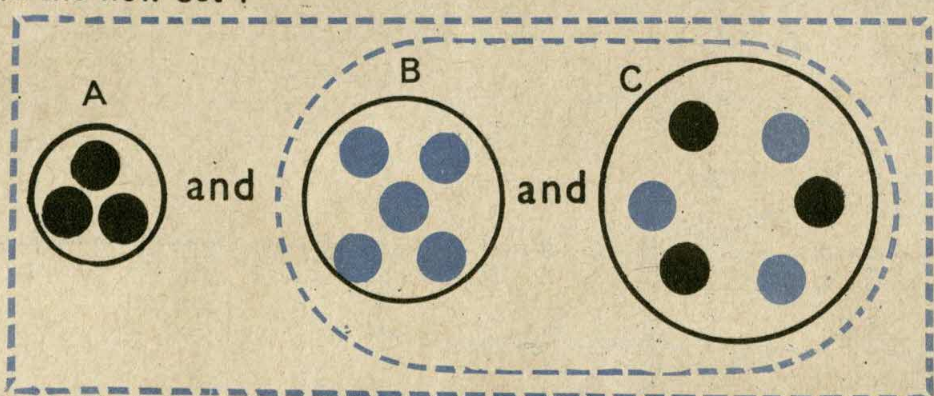
14. $1023 + 27$; $27 + 1023$

15. $7122 + 2355$; $2355 + 7122$

16. $3694 + 2701$; $2701 + 3694$

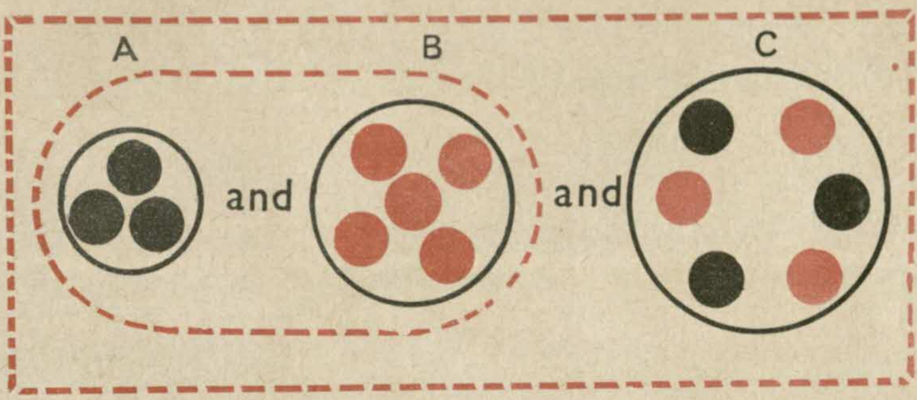
EXERCISE

1. First join the sets A and B, then join the set C. How many marbles are there in the new set ?



$(3 + 5) + 6 = 8 + 6 = 14$

2. First join the sets B and C and then join the set A. How many marbles are there in the new set ?



$3 + (5 + 6) = 3 + 11 = 14$

We can see that : $(3 + 5) + 6 = 3 + (5 + 6)$

3. Add 69, 22 and 78 in three ways :

I	II	III
$69 + 22 = 91$	$22 + 78 = 100$	$+ 78 = 147$
$91 + 78 = 169$	$100 + 69 = 169$	$147 + 22 = 169$

We get the same result, II way is the easiest.

$(69 + 22) + 78 = 69 + (22 + 78) = (69 + 78) + 22$

Add in three ways and see which is the easiest.

4. $69 + 31 + 578 =$

5. $436 + 748 + 52 =$

6. $561 + 397 + 603 =$

I	II	III

Add in your notebook in the easiest way.

7. $281 + 694 + 119$

8. $753 + 188 + 247$

9. $163 + 237 + 429$

Add and see the pattern :

10. $36 + 0 = \boxed{36}$; $0 + 36 = \boxed{36}$

11. $237 + 0 = \boxed{}$; $0 + 237 = \boxed{}$

12. 5348 + 0 = ☐ ; 0 + 5348 = ☐

13. 0 + 0 = ☐; 4000 + 0 = ☐

14. Take any number and add 0 to it.

15. Take 0 and add any number to it.

16. Work out on a number line :

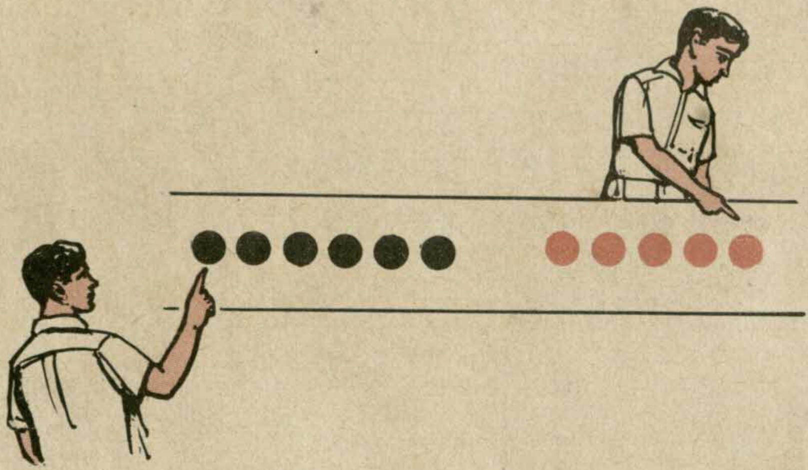
5 + 0, 12 + 0, 15 + 0, 8 + 0 and

0 + 5, 0 + 12, 0 +15, 0 + 8

PROBLEMS

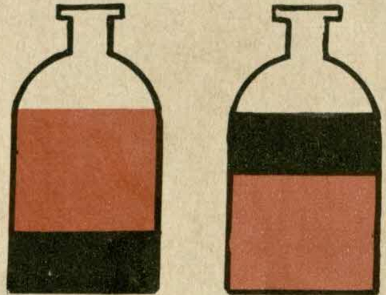
EXERCISE

1. In the following picture two boys are finding the number of balls. There are two sets of balls. Do they get the same result ?



2. A man first puts 25 mangoes in a bag and then 53 apples in it. The bag gives way. So he puts them in a basket – first putting the apples and then mangoes. Does the number of fruits remain the same ?

3. Is the quantity of powder same in two bottles ?



4. Add 576 and 324. Is it the same as 324 + 576 ?

5.

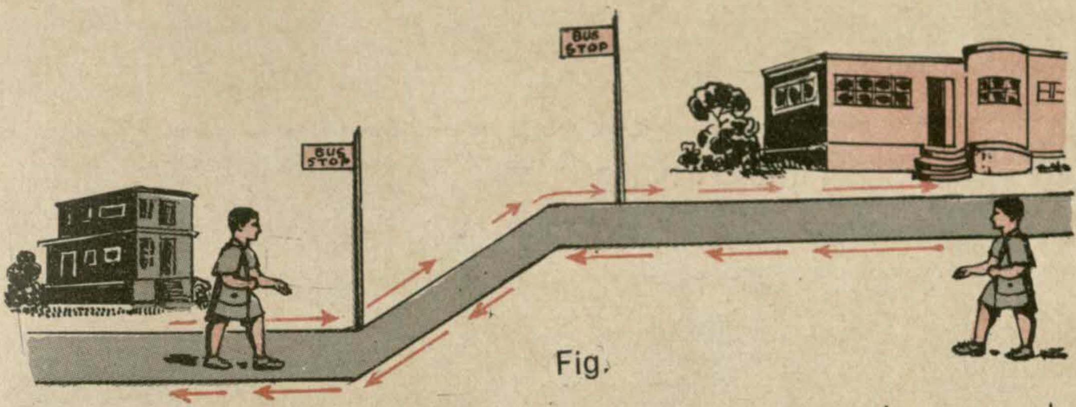


Fig.

A student goes to the school and he comes home as shown in the figure. Does he walk the same distance each time ?

6. Add 977, 523 and 783 in three ways.

Fill the correct number in the boxes :

7. 578 + ☐ = 3522 + 578

8. 4036 + 2564 = ☐ + 4036

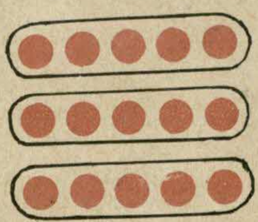
9. 723 + 481 + ☐ = ☐ + ☐ + 836.

10. A labourer earned Rs. 12/- on one day. Next day it rained. He earned nothing. How much did he earn in two days ?

MULTIPLICATION

EXERCISE

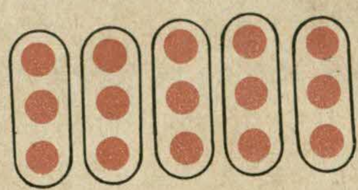
1. How many cubs in 3 rows ?



3x5

Number of cubs = 3 × 5 = 15

2. How many cubs in 5 columns ?

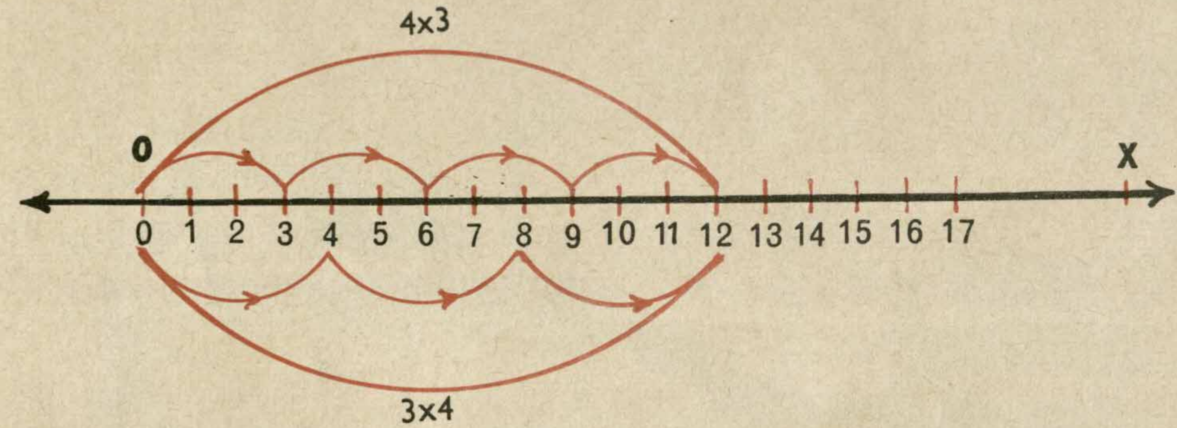


5x3

Number of cubs = 5 × 3 = 15

We see that : **3 × 5 = 5 × 3**

3. Show 4 × 3 and 3 × 4 on the number line. What do you notice ?



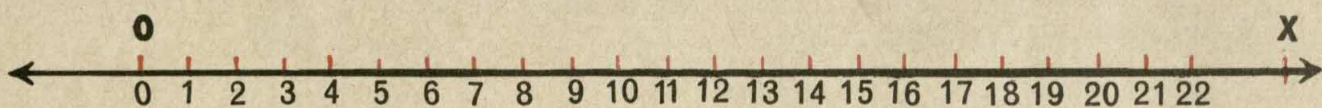
4 × 3 = 3 × 4 = 12

We see that : **3 × 4 = 4 × 3**

4. Multiply 4 by 5 and also 5 by 4 on the number line

and see that

4 × 5 = 5 × 4



5. Multiply 12 by 8 and 8 by 12.

```
  12        8
 × 8     × 12
 ---     ----
  96       96
```

12 × 8 = 8 × 12

Multiply and see the pattern :

6.

```
     57       23
   × 23     × 57
  -----    -----
  _ _ _    _ _ _
 _ _ _    _ _ _
  -----    -----
 _ _ _ _  _ _ _ _
  -----    -----
```

7.

```
     27       38
   × 38     × 27
  -----    -----
  _ _ _    _ _ _
 _ _ _    _ _ _
  -----    -----
 _ _ _ _  _ _ _ _
  -----    -----
```

8. 29 × 70; 70 × 29

9. 43 × 28; 28 × 43

Multiply and see the pattern :

10. 238 × 1; 417 × 1; 344 × 1; 4572 × 1

11. 1 × 38; 1 × 87; 1 × 76 ; 1 × 98

EXAMPLE 1

How many flowers in all ?

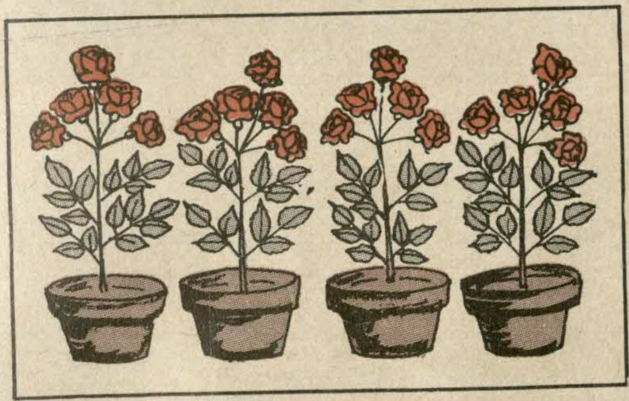


Fig.

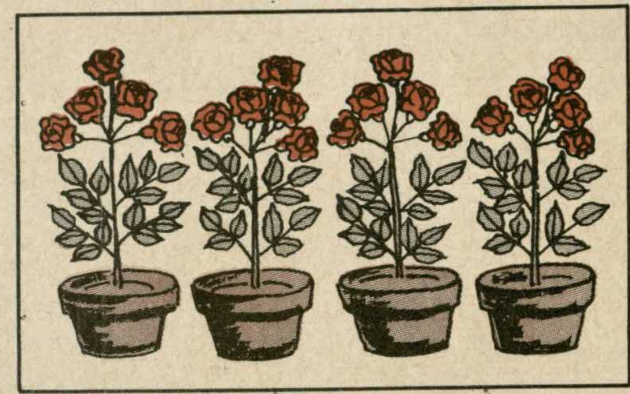


Fig.

I Method : Number of beds = 2. Each bed has 4 plants.

Total number of plants = 2 × 4 = 8

Each plant has 5 flowers.

Total number of flowers = 8 × 5 = 40

so (2 × 4) ×5 = 8 × 5 = 40

II Method : Number of plants in a bed = 4. Each plant has 5 flowers.

The number of flowers in one bed = 4 × 5 = 20

The number of flowers in 2 beds = 2 × 20 = 40

so 2 × (4 × 5) = 2 × 20 = 40

We see that **(2 × 4) × 5 = 2 × (4 × 5)**

We can verify that **(2 × 4) × 5 = (2 × 5) × 4**

EXAMPLE 2

Multiply 48 by 10, 20, 50 and 80.

$10 = 1 \text{ ten} = 1T$

$48 \times 10 = 48 \times 1T$
$= 48\ T$
$= 48 \text{ tens}$
$= 480$

Similarly

$48 \times 50 = (48 \times 5)\ T$
$= 240\ T$
$= 240 \text{ tens}$
$= 2400$

$$\begin{array}{r} 48 \\ \times 5 \\ \hline 240 \\ \hline \end{array}$$

We know that $20 = 2 \times 10$

so $48 \times 20 = (48 \times 2) \times 10$
$= (48 \times 2)\ T$
$= 96\ T$
$= 960$

$$\begin{array}{r} 48 \\ \times 2 \\ \hline 96 \\ \hline \end{array}$$

$48 \times 80 = (48 \times 8)\ T$
$= 384\ T$
$= 3840$

$$\begin{array}{r} 48 \\ \times 8 \\ \hline 384 \\ \hline \end{array}$$

EXERCISE

Multiply in your notebook :

1. 88×10; 27×20; 9×40; 83×30; 96×80

2. 169×60; 246×30; 164×90; 28×100; 32×300

Work out in three ways in your notebook and see the easiest way.

3. $\underline{6 \times 2} \times 5 = 12 \times 5 = \boxed{60}$; $6 \times \underline{2 \times 5} = 6 \times 10 = \boxed{60}$

$6 \times 2 \times 5 = \underline{6 \times 5} \times 2 = 30 \times 2 = \boxed{60}$. We see that second way is the easiest. Why ? Tick it. I II III

I	II	III
	✓	

4. $12 \times 8 \times 5 =$

5. $17 \times 5 \times 14 =$

6. $49 \times 9 \times 10 =$

7. $15 \times 4 \times 22 =$

8. $25 \times 57 \times 4 =$

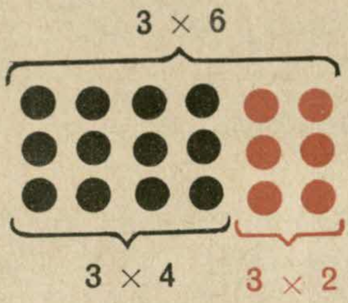
9. $12 \times 66 \times 50 =$

10. $37 \times 8 \times 15 =$

11. $75 \times 17 \times 12 =$

I	II	III

EXAMPLE 1



How many balls in all ? 3×6.

How many black balls ? 3×4.

How many red balls ? 3×2.

so $3 \times 6 = 3 \times 4 + 3 \times 2$

or $3 \times (4 + 2) = 3 \times 4 + 3 \times 2$

We see that :

$$\boxed{3 \times (4 + 2) = 3 \times 4 + 3 \times 2}$$

EXAMPLE 2

Multiply 9×96 in two ways :

$$9 \times 96 = \begin{array}{r} 96 \\ \times\ 9 \\ \hline 864 \\ \hline \end{array}$$

$$\begin{aligned} 9 \times 96 &= 9 \times (90 + 6) \\ &= 9 \times 90 + 9 \times 6 \\ &= 810 + 54 \\ &= 864 \end{aligned}$$

We can also do as :

$$\begin{aligned} 9 \times 96 &= 9 \times (100 - 4) \\ &= 9 \times 100 - 9 \times 4 \\ &= 900 - 36 \\ &= 864 \end{aligned}$$

EXERCISE

Work out in your notebook in two ways :

1. $12 \times (50 + 7)$; 12×57
2. $18 \times (60 - 3)$; 18×57
3. $4 \times (120 + 8)$; 4×128
4. $25 \times (200 + 8)$; 25×208

Write the numbers in the boxes correctly.

5. $7 \times (80 + 3) = 7 \times \square + 7 \times \square$
6. $19 \times 84 = 19 \times \square + 19 \times \boxed{4}$
7. $8 \times 97. = 8 \times \square - 8 \times 3$
8. $16 \times (100 - 15) = 16 \times \square - 16 \times \square$
9. $\square \times (\square + \square) = 14 \times 70 + 14 \times 9$
10. $26 \times 37 + 26 \times 23 = \square \times (\square + \square)$
11. $17 \times 115 = 17 \times \square + 17 \times 15$

12. □ × 165 = 23 × 100 + □ × 65

13. 24 × 200 + 24 × 19 = 24 × □

14. 47 × 100 − 47 × 14 = 47 × □

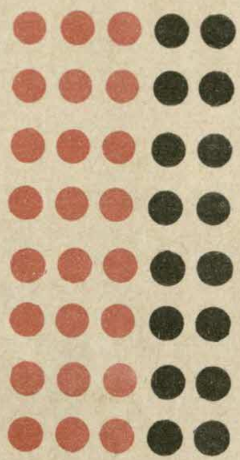
EXERCISE

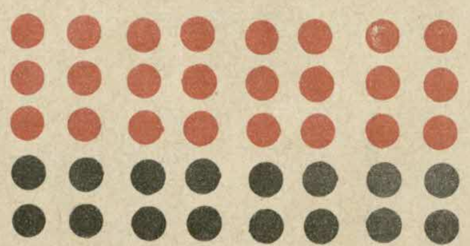
Work out in your notebook :

1. Simplify : 75 × 42 and 42 × 75.

2. For drill children stand in 36 rows. Each row has 24 children. For exercise they stand in 24 rows. Each row has 36 children. Is the number of children the same in two cases ?

3.





The number of dots in the first figure = 8 × 5

The number of dots in the second figure =......×.......

Is the number same in both cases ? Count and see.

4. △ × [57] = [57] × △. Put the correct number in △

5. Each almirah has 4 shelves. Each shelf has 24 books. How many books will be in 5 almirahs? Find in two ways.

6. Multiply 9, 125 and 8 in two ways : (9 × 125) × 8 or 9 × (125 × 8). Which is easier ?

7. You have to multiply 86, 397 and 0. Which two numbers should be multiplied first to make the work easier ?

Fill correct numbers in the boxes :

8. (28 × 17) × 8 = □ × (17 × 8).

9. 23 × (15 + 35) = 23 × □ + 23 × □

10. □ × (60 − 7) = 17 × 60 − 17 × □

11. 18 × (□ + □) = 18 × 200 + 18 × 47

12. 3054 × 1 = □

13. □ × 8017 = 8017

14. 9324 × □ = 0

ADDITION AND SUBTRACTION :

EXERCISE

Add and write the sum in the box.

1.

231
321
435
987

Box: 987

2.

220
134
433

Box: [ ]

3.

2103
1234
5342

Box: [ ]

4.

2350
104
7032

Box: [ ]

5.

4231
520
34

Box: [ ]

6.

123
4560
2214

Box: [ ]

Subtract and write the result in the box.

7.

9876
− 4562
5314

Box: 5314

8.

6879
− 4521

Box: [ ]

9.

5620
− 4520

Box: [ ]

10.

4321
− 1210

Box: [ ]

ADD :

11.

△ 1	□ 1	○ 1	
2	3	0	4
1	6	8	9
5	4	7	2
9	4	6	5

Box: 9465

12.

△	□	○	
2	3	5	7
4	0	9	9
1	8	8	3

Box: [ ]

△ □ ⬭

13.

2	3	5	6
	8	9	9
6	4	0	9
		7	6

△ □ ⬭

14.

		6	9
5	8	7	8
	9	2	1
1	6	3	0

SUBTRACT :

15. 3204 − 1689 = 1515 [1515]

16. 3000 − 2888 = [ ]

17. 9302 − 8493 = [ ]

18. 4521 − 2819 = [ ]

19. 8341 − 3056 = [ ]

20. 7023 − 982 = [ ]

EXERCISE

Work out in your note book-and write the answer in the box.

1. 2345 + 4518 + 1938 = [ ]
2. 3516 + 2187 + 1329 = [ ]
3. 4287 + 3876 + 1000 = [ ]
4. 2000 − 1999 = [ ]
5. 1245 + 2451 + 4382 = [ ]
6. 5173 − 2456 [ ]
7. 567 + 789 + 4038
8. 5304 − 2899
9. 1111 + 3333 + 4666 = [ ]
10. 6333 − 4888
11. 7543 + 2289
12. 9832 − 2289

13. 9832 − 7543 = □

14. 3804 + 2758 = □

15. 6562 − 2758 = □

16. 6562 − 3804 = □

Which is greater ?

17. 2352 + 1405 or 8032 − 3479 □

18. 5104 + 228 or 2304 + 3108 □

Put the sign ‘<’ or ‘=’ or ‘>’ correctly in the box :

19. 3089 + 2871 □ 6000

20. 6123 − 5542 □ 8021 − 7832

21. 4516 □ 2012 + 1867

22. 7000 − 6999 □ 6523 − 6522

23. 2120 + 3456 □ 3215 + 4551

24. 8341 − 8332 □ 78 − 32

MULTIPLICATION

EXERCISE

Multiply :

Example :

1. 213 × 3 = 639

2. 2402 × 2

3. 1234 × 2

4. 1010 × 7

5. 453 × 5

6. 728 × 9

7. 1241 × 8

8. 2309 × 2

9. 826 × 12

1652
826
9912

10. 654 × 15

11. 297 × 26

12. 383 × 30

13. 98 × 57

14. 79 × 97

15. 103 × 88

16. 66 × 66

Work out in your note-book:

17. 1000 × 6 **18.** 1223 × 3 **19.** 2001 × 4

20. 1111 × 9 **21.** 228 × 42 **22.** 320 × 22

23. 56 × 98 **24.** 69 × 39

Write the result without actual multiplication :

25. 2038 × 1 = ☐ **26.** 4578 × 1 = ☐ **27.** 8097 × 1 = ☐

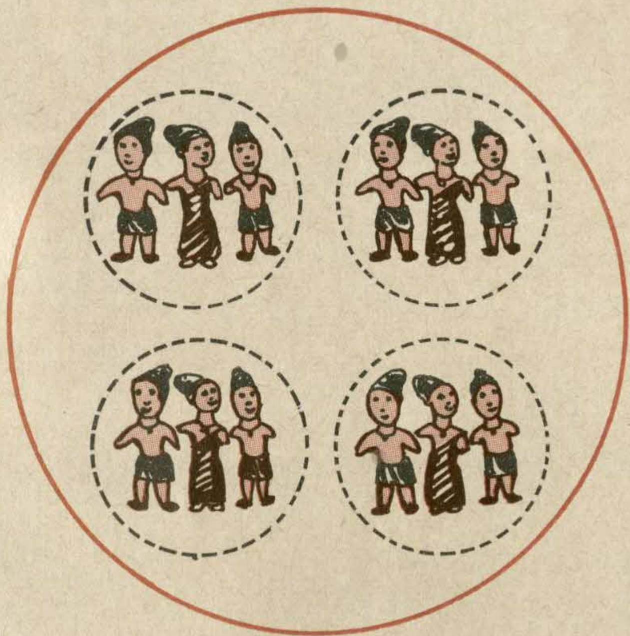
28. 9315 × 0 = ☐ **29.** 3000 × 0 = ☐ **30.** 0 × 0 = ☐

31. 1 × 0 = ☐ **32.** 1 × 99 = ☐

DIVISION

Example 1 :

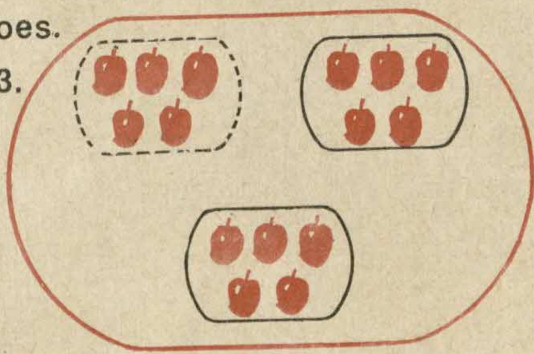
Group the toys in 3's.



There are 4 groups. We write $12 \div 3 = 4$ and we read 12 divided by 3 = 4. Symbol $\div$ is for division. We see that $12 > 3$.

Example 2 :

Here are 15 mangoes. Make sets of 5 mangoes. There are 3 such sets. We write $15 \div 5 = 3$. We see that $15 > 5$.



Example 3 :

Subtract 5 from 20 again and again.

$$\begin{array}{rl} 20 & \\ -\ 5 & (1) \\ \hline 15 & \\ -\ 5 & (2) \\ \hline 10 & \\ -\ 5 & (3) \\ \hline 5 & \\ -\ 5 & (4) \\ \hline 0 & \end{array}$$

We can subtract 5 from 20,4 times. We can write it in short form as

$20 \div 5 = 4.$

We again see that $20 > 5$.

Example 4 :

How many times 2 goes in 14 ?

We know that $2 \times 7 = 14$

So 2 goes 7 times in 14.

We write it $14 \div 2 = 7$ $(14 > 2.)$

Example 5 :

You know that $8 \times 6 = 48$ and $48 \div 6 = 8$

Also $6 \times 8 = 48$ and $48 \div 8 = 6$

EXERCISE

1. Make groups of 6 out of 36 boys [6] group
2. Make groups of 7 out of 56 [ ] group
3. How many times can you subtract .
   4 from 32? [ ] 5 from 30? [ ] and 9 from 27? [ ]
4. How many times is 8 in 40? [ ] 3 in 18? [ ] and 6 in 42 ? [ ]

From the multiplication table find.

5. $8 \times 7 =$ [ ]; $56 \div 7 =$ [ ]
6. $7 \times 9 =$ [ ]; $63 \div 9 =$ [ ]
7. $5 \times 10 =$ [ ]; $50 \div 10 =$ [ ]
8. $9 \times 4 =$ [ ]; $36 \div 4 =$ [ ]
9. $7 \times 5 =$ [ ]; $35 \div 5 =$ [ ]
10. $6 \times 8 =$ [ ]; $48 \div 8 =$ [ ]

We know that : $72 \div 8 = 9$ and $9 \times 8 = 72$ Here 9 is the **quotient**; 72 is the number divided by 8 and is called **Dividend** and 8 is called **Divisor**.

We can examine it from our multiplication table.

Example :

$12 \div 3$ means 'How many times 3 goes in 12 ? or

how many times can we subtract 3 from 12 ?

From the multiplication table $4 \times 3 = 12.$

3 is 4 times in 12.

We say $12 \div 3 = 4$

Let us subtract now.

$12 - 3 = 9$, $9 - 3 = 6$, $6 - 3 = 3$, $3 - 3 = 0$

or subtract $3+3+3+3$ from 12 or subtract 4×3 from 12.

We write it as 3) 12 (4

12 ⟶ 4×3

0

Example :

Find : $30 \div 5$

5) 30 (6 Read multiplication table for 5

− 30 till you reach 30.

0 We get $6 \times 5 = 30$.

Quotient (Q) = 6

EXERCISE

Divide with the help of multiplication table. See that the dividend > divisor.

1. 3) 27 (9
− 27 Q = 9
0

2. 4) 32 (–
–– Q = ☐
–

3. 7) 56 (–
–– Q = ☐
–

4. 9) 45 (–
–– Q = ☐
–

5. 10) 90 (–
–– Q = ☐
–

6. 12) 84 (–
–– Q = ☐
–

Work out in your notebook .

7. $16 \div 2$; $18 \div 3$; $30 \div 3$; $12 \div 4$

8. $24 \div 6$; $36 \div 4$; $45 \div 5$; $42 \div 6$

9. $63 \div 7$; $64 \div 8$; $54 \div 9$; $18 \div 9$

10. $77 \div 11$; $50 \div 10$; $108 \div 12$; $88 \div 11$

11. $20 \div 2$; $40 \div 4$; $70 \div 7$; $120 \div 12$

12. $4 \div 1$; $9 \div 1$; $10 \div 1$; $7 \div 1$

Division with the help of expanded form

Example : Divide 26 by 2 or find 26 ÷ 2

26 = 2 tens + 6 units.

26 ÷ 2 = (2 tens ÷ 2) + (6 units ÷ 2)

= 1 ten + 3 units

= 13.

It is the same as :

```
2 ) 26 ( 1Tdividing 2 tens by 2.
    20
2 )  6 ( 3Udividing 6 units by 2.
     6
     0
```

26 ÷ 2 = 1 T + 3 U = 13

In short we write :

```
2 ) 26 ( 13
    2 ¦ ——> 1 × 2
    6
    6 ——> 3 × 2
    0          Q = 13
```

EXERCISE

Divide on your notebook :

1. 48 ÷ 4 **2.** 63 ÷ 3 **3.** 55 ÷ 5 **4.** 84 ÷ 2

Divide :

```
5. 3 ) 69 ( 23        6. 2 ) 68 ( □ □
       6 ¦                   – ¦
       9                     8
       9                     –
       0                     0

7. 8 ) 8 8 ( □ □      8. 9 ) 9 9 ( □ □
       – ¦                   – ¦
       8                     9
       –                     –
       0                     0
```

Division of 3 digit and 4 digit numbers

EXERCISE

1. Example : Divide 448 ÷ 4

```
    H T U
4 ) 4 4 8 ( 1 H, dividing 4 hundreds by 4
    4
4 )   4   ( 1 T, dividing 4 tens by 4
      4
4 )     8 ( 2 U, dividing 8 units by 4
        8
        0
```

448 ÷ 4 = 1H + 1T + 2U = 112.

In short we write.

```
4 ) 4 4 8 ( 112
    4
      4
      4
        8
        8
        0      Q = 112
```

2. Example : Divide : 6936 ÷ 3

```
3 ) 6 9 3 6 ( 2312
    6
      9
      9
        3
        3
          6
          6
          0      Q = 2312
```

3.
```
2 ) 4 6 8 ( □□□
  −
  ----
    6
  −
  ----
      8
      −
  ----
      −      Q = □
```

4.
```
2 ) 4 2 6 ( □□□
  −
  ----
    2
  −
  ----
      6
      −
  ----
      −      Q = □
```

5.
```
4 ) 4 8 8 ( □□□
  −
    8
    −
  ----
      8
      −
  ----
      −      Q = □
```

6.
```
3 ) 9 3 6 6 ( □□□□
  −
    3
    −
  ----
      6
      −
  ----
        6
        −
  ----
        −      Q = □
```

7.
```
6 ) 6 6 6 6 ( □□□□
  −
  ----
    6
    −
  ----
      6
      −
  ----
        6
        −
  ----
        −      Q = □
```

8.
```
2 ) 8 6 4 2 ( □□□□
  −
  ----
    6
    −
  ----
      4
      −
  ----
        2
        −
  ----
        −      Q = □
```

Work out in your notebook :

9. 3) 369 (; 2) 2864 (; 5) 555 (

10. 8) 8888 (; 4) 8484 (; 2) 684 (

11. $4444 \div 2$; $6633 \div 3$; $4884 \div 4$

2. $7777 \div 7$; $999 \div 9$; $3333 \div 3$

EXERCISE

1. Divide 128 by 4

128 = 1H + 2T + 8U

Here we will first divide 1 by 4.

But $1 < 4$

So, 4 cannot divide 1.

We write 128 = 12T + 8U.

Now we will first divide 12 by 4.

$12 \div 4 = 3$ and $8 \div 4 = 2$

There fore128 ÷ 4 = 3T + 2U = 32.

We can write it as

```
4 ) 1 2 8 ( 3, dividing 12 by 4   or   4 ) 128 ( 32
    12                                     12
4 )    8 ( 2                                8
       8                                    8
       0    Q = 32                          0
```

In the quotient the number of hundreds is zero.

2. Divide : 328 ÷ 8

```
8 ) 328 ( 41                  041
    32          or       8 ) 328 (
     8                       32
     8                        8
                              8
     0   Q = 41               0
```

Again in the quotient the number of hundreds is zero.

Work out the following in your notebook .

3. 124 ÷ 2, 168 ÷ 2, 142 ÷ 2, 186 ÷ 2

4. 126 ÷ 3, 246 ÷ 3, 189 ÷ 3, 183 ÷ 3

5. 244 ÷ 4, 324 ÷ 4, 288 ÷ 4, 164 ÷ 4

6. 126 ÷ 6, 246 ÷ 6, 357 ÷ 7, 497 ÷ 7

7. 155 ÷ 5, 205 ÷ 5, 405 ÷ 5, 355 ÷ 5

8. 408 ÷ 8, 568 ÷ 8, 189 ÷ 9, 549 ÷ 9

EXERCISE

1. Divide : 8) 2488 (

Here 8 cannot divide 2. So start with 24 hundreds.

There will be no thousands in the quotient.

```
8 ) 2488 ( 311
    24
    --
     8
     8
     --
      8
      8
      --
      0      Q = [311]
```

```
      0311
8 ) 2488
    24
    --
     8
     8
     --
      8
      8
      --
      0      Q = [311]
```

2. Divide :

```
     ---
4 ) 1284
    -
    --
     8
     -
     --
      4
      -
      --
      -      Q = [   ]
```

```
        ---
3. 7 ) 14 7 7
       -
       --
        7
        -
       --
          7
          -
          --
          0      Q = [   ]
```

```
        ---
4. 3 ) 27 6 9
       -
       --
        6
        -
       --
          9
          -
          --
          0      Q = [   ]
```

```
        ---
5. 6 ) 30 6 6
       -
       --
        6
        -
       --
          6
          -
          --
          0      Q = [   ]
```

Work out in your notebook :

6. 1824 ÷ 2 ; 2136 ÷ 3 ; 1648 ÷ 4

7. $3244 \div 4$; $1863 \div 3$; $1448 \div 2$

8. $4055 \div 5$; $3684 \div 4$; $4555 \div 5$

9. $4266 \div 6$; $6377 \div 7$; $3666 \div 6$

10. $1477 \div 7$; $5688 \div 8$; $7299 \div 9$

EXERCISE

1. Divide 72 by 2.

   We have first to divide 7 by 2

   Read the multiplication table of 2

   $3 \times 2 = 6$ and $4 \times 2 = 8$

```
   3 6
2 ) 7 2
    6 → 3×2
   ----
    12
    12 → 6×2
   ----
     0
```

Q = 36

7 lies between 6 and 8.

So 2 goes into 7 only 3 times and 1 is left.

1 ten and 2 units = 12.

$12 \div 2 = 6$.

2. Divide

```
    _ _
4 ) 9 2
    _
   ----
    _ 2
   ----
      0
```

Q = ☐

3.

```
    2 _
3 ) 8 4
    6
   ----
    2 _
    _ _
   ----
    0
```

Q = ☐

Work out in your notebook :

4. 2) 34 , 3) 72 , 4) 76

5. $87 \div 3$, $60 \div 4$, $74 \div 2$

6. $92 \div 4$, $48 \div 3$, $85 \div 5$

7. $78 \div 6$, $98 \div 7$, $96 \div 8$

8. $90 \div 6$, $90 \div 5$, $84 \div 7$

EXERCISE

1. Work out $128 \div 8$
   We cannot divide 1 by 8.

```
     1 6
8 ) 1 2 8
    8
   -----
    4 8
    4 8
   -----
      0
```

Q = 16

So we divide 12.

8 goes 12 only once and 4 is left.

Again divide 48 by 8. We get 6.

2. $7\overline{)245}$, $9\overline{)369}$, $6\overline{)258}$

3. 485 ÷ 5, 688 ÷ 8, 786 ÷ 6

4. 574 ÷ 7, 837 ÷ 9, 658 ÷ 7

5. Example

$$
\begin{array}{r}
232 \\
4\,\overline{)\,928} \\
\underline{8} \\
12 \\
\underline{12} \\
8 \\
\underline{8} \\
0
\end{array}
\qquad Q = \boxed{232}
$$

6. 364 ÷ 2, 876 ÷ 3, 968 ÷ 8

7. 945 ÷ 7, 768 ÷ 4, 846 ÷ 6

8. 724 ÷ 4, 543 ÷ 3, 605 ÷ 5

EXERCISE (4 digit numbers)

Divide :

1. 1205 by 5

$$
\begin{array}{r}
241 \\
5\,\overline{)\,1205} \\
\underline{10} \\
20 \\
\underline{20} \\
5 \\
\underline{5} \\
0
\end{array}
\qquad Q = \boxed{241}
$$

2. 2268 by 9

$$
\begin{array}{r}
252 \\
9\,\overline{)\,2268} \\
\underline{18} \\
46 \\
\underline{45} \\
18 \\
\underline{18} \\
0
\end{array}
\qquad Q = \boxed{252}
$$

Work out in your notebook :

3. 2648 ÷ 8, 7688 ÷ 8, 4487 ÷ 7

4. 3255 ÷ 5, 3786 ÷ 6, 9846 ÷ 2

5. 7626 ÷ 3, 6484 ÷ 4, 5841 ÷ 11

6. 7390 ÷ 10, 8664 ÷ 12, 3288 ÷ 12

7. $9625 \div 11$, $5679 \div 9$, $8195 \div 11$

8. $9872 \div 1$, $8650 \div 10$, $9348 \div 12$

Note that : $12 \times 1 = 12$ and $12 \div 1 = 12$

$453 \times 1 = 453$ and $453 \div 1 = 453$

$0 \times 25 = 0$ and $0 \div 25 = 0$

$0 \times 218 = 0$ and $0 \div 218 = 0$

9. Find $23 \div 1$, $519 \div 1$, $2563 \div 1$, $8903 \div 1$

10. Find $0 \div 8$, $0 \div 37$, $0 \div 684$, $0 \div 5341$

EXERCISE

1. **Example :** Divide, $824 \div 4$

```
   206                 206
4) 824        or    4 ) 824
   8                    8
   -                    --
   2                    24
   0                    24
   --                   --
   24                   0
   24
   --
   0     Q = 206
```

2. **Example :** $6012 \div 3$

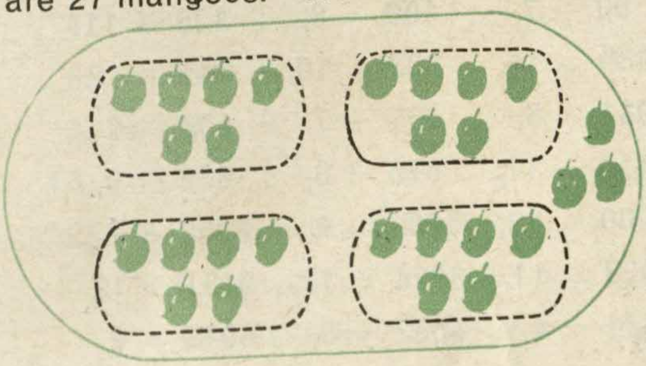
```
     2004
3 ) 6012
    6
    --
    012
     12
     --
      0    Q = 2004
```

Work out in your notebook :

3. $412 \div 2$, $800 \div 10$
4. $1218 \div 3$, $2409 \div 3$
5. $1232 \div 4$, $4020 \div 4$
6. $6015 \div 5$, $1510 \div 10$
7. $4212 \div 6$, $4072 \div 8$
8. $7147 \div 7$, $1260 \div 7$
9. $560 \div 8$, $3656 \div 8$
10. $9486 \div 9$, $2088 \div 9$
11. $1331 \div 11$, $4499 \div 11$
12. $6108 \div 12$, $5160 \div 12$

Division with remainder :

Example 1 : Here are 27 mangoes. Make sets of 6 out of them.



We see that :

There are 4 such sets and 3 are left.

We can do it by division.

```
     4
   ____
6 ) 27
    24
   ___
     3
```

This 3 is called the **Remainder.** We will write 'R' for it.

Then Q = [4] and R = △3

We also see that

4 × 6 = 24
24 + 3 = 27

Example 2 : Divide 287 by 8 and find the remainder.

```
    35
   ____
8 ) 287
    24
   ___
    47
    40
   ___
     7
```

Q = [35]

R = △7

Verification

35 × 8 = 280

280 + 7 = 287

EXERCISE

Work out in your notebook and write the quotient and remainder in each case.

1. 38 ÷ 5, 46 ÷ 6, 17 ÷ 2, 25 ÷ 3
2. 62 ÷ 8, 74 ÷ 9, 87 ÷ 10, 98 ÷ 12
3. 43 ÷ 2, 50 ÷ 3, 42 ÷ 4, 67 ÷ 5
4. 69 ÷ 6, 90 ÷ 7, 100 ÷ 8, 125 ÷ 11
5. 130 ÷ 12, 289 ÷ 11, 383 ÷ 10, 241 ÷ 12
6. 756 ÷ 11, 931 ÷ 8, 467 ÷ 7, 509 ÷ 6
7. 873 ÷ 12, 415 ÷ 11, 576 ÷ 8, 632 ÷ 9
8. 1000 ÷ 11, 3000 ÷ 12, 5000 ÷ 6, 8000 ÷ 7
9. 6301 ÷ 10, 7029 ÷ 11, 8524 ÷ 12, 9131 ÷ 12
10. 1562 ÷ 9, 2341 ÷ 4, 4637 ÷ 5, 5918 ÷ 6

EXERCISE

Work out and verify :

1. Example : 84 ÷ 7.

```
     12
 7 ) 84
     7
     14      Q = [12]
     14
      0      R = △0
```

Verification

12 × 7 = 84

84 + 0 = 84

2. Example : 235 ÷ 12

```
      19
12 ) 235
     12
     115     Q = [19]
     108
       7     R = △7
```

Verification :—

19 × 12 = 228

228 + 7 = 235

3. 45 ÷ 9, 72 ÷ 12, 88 ÷ 11, 63 ÷ 7

4. 54 ÷ 4, 43 ÷ 2, 67 ÷ 3, 79 ÷ 5

5. 91 ÷ 8, 98 ÷ 7, 109 ÷ 9, 120 ÷ 11

6. 65 ÷ 6, 128 ÷ 12, 128 ÷ 10, 128 ÷ 11

7. 241 ÷ 4, 307 ÷ 5, 428 ÷ 6, 503 ÷ 7

8. 818 ÷ 8, 934 ÷ 9, 961 ÷ 11, 1000 ÷ 12

EXERCISE

Work out in your notebook :

1. 848 ÷ 4 **2.** 939 ÷ 3

3. 6482 ÷ 2 **4.** 5505 ÷ 5

5. 7210 ÷ 5 **6.** 8648 ÷ 8

7. 9300 ÷ 10 **8** 9360 ÷ 9

9. 1236 ÷ 4 **10.** 1545 ÷ 5

Divide and find the remainder if any in the following :

Example :

11. 8736 by 12

Example :

12. 5689 by 11

```
12 ) 8736 ( 728
     84
     33
     24
      96
      96
       0
```

Quotient = 728
Remainder = 0

```
11 ) 5689 ( 517
     55
      18
      11
       79
       77
        2
```

Quotient =
Remainder =

13. 2342 by 9

9) 2342 (

Quotient =
Remainder =

14. 4781 by 10

10) 4781 (

Quotient =
Remainder =

15. 7529 by 12

12) 7529 (

Quotient =
Remainder =

16. 9878 by 11

11) 9878 (

Quotient =
Remainder =

Workout in your note book :

17. 2572÷8	18. 3408÷9	19. 7159÷11
20. 2345÷3	21. 4506÷6	22. 2046÷5
23. 8009÷1	24. 0÷1	25. 0÷10
26. 7212÷9	27. 8721÷12	28. 1002÷11
29. 1248÷12	30. 5432÷6	31. 9123÷9

Problems

EXERCISE

Work out in your notebook :

1. Write the numbers between 3057 and 3061.

2. Which is greater 4516 + 2103 or 9850 − 1078 ?
3. In a year a man earns Rs. 9564 and spends Rs. 8039. How much does he save ?
4. A man's income is as follows :
Salary = Rs. 4036, House rent = Rs. 2460, Business = Rs. 1080. Find his total income.
5. In a village there are 8356 persons. Out of this only 4290 can vote. How many cannot vote ?
6. In three schools there are 897, 1435 and 1085 students. How many are there in all?
7. What should be added to 2317 to make it 5042 ?
8. What should be subtracted from 8010 to get 2789?
9. If 2019 is added to a number it becomes 4058. Find the number.
10. If 4536 is subtracted from a number we get 2387. Find the number.
11. There are 75 fruits in each basket. How many will there be in 8 baskets?
12. A bus carries 53 passengers in one round. How many will it carry in 26 rounds ?
13. Which is greater 83 × 176 or 9032 − 2199 ?
14. Each student was given Rs. 48 as scholarship. How much money was given to 145 students ?
15. Multiply 243 by 35 and add 1038 to the result.
16. A class has 67 children. Each child needs Rs. 24 for books. Find the total money needed.
17. Subtract 7 from 4039 and divide the remainder by 12. Now divide 4039 by 12 and see the remainder.
18. Add 4789 and 3562 and divide the sum by 12.
19. 324 boys stand in 12 rows. How many boys will there be in each row?
20. Which is smaller 77 × 8 or 2024 ÷ 8 ?
21. Put 9435 books equally in 9 almirahs. How many are left ?
22. Out of 853 players, teams of 11 players are formed. How many teams will be there and how many players will be left over ?

Fill the correct digit in each frame :–

23.

```
      6  7
  ×   3  △
  ---------
      6  7
△  △  △
  ---------
△  △  △  △
```

24.

```
11) 4 5 7 6 (4 △△
    △△
    -----
      1 7
      △△
      -----
        △△
        △△
        -----
         0
```

25. Divide 2134 by 7 and find the quotient and the remainder. Now multiply the quotient by 7 and add the remainder. What number do you get ?

Make stories (problems) as many as you can for each of the following :

26. 8 + 6 = ☐ **27.** 536 − 483 = ☐

28. 32 × ☐ = 288 **29.** 2025 ÷ 5 = ☐

30. 2035 + 985 + 7056 = ☐

Multiplication and division

Verbal problems

1. A radio costs Rs. 275. What is the cost of 5 radios ?

Cost of 1 radio = Rs. 275

Cost of 5 radios = Rs. 5 × 275

= Rs. 1375

```
  3 2
  2 7 5
    × 5
  -----
  1375
```

2. The cost of 6 radios is Rs. 1068.

What is the cost of one radio ?

Cost of 6 radios = Rs. 1068

Cost of 1 radio = Rs. 1068 ÷ 6

= Rs. 178

```
6) 1068 (178
   6
   --
   46
   42
   --
    48
    48
    --
     0
```

3. The salary of a person is Rs. 472 per month.

How much does he earn per year ?

Salary for one month = Rs. ......

Salary for one year = Rs. ......

= Rs. ......

4. The speed of a mail train is 65 kilometres per hour. The mail train takes 36 hours from Delhi to Hyderabad. What is the distance between Delhi and Hyderabad ?

Distance travelled in one hour = ... km

Distance travelled in 36 hours = ... km

= ...... km

Distance between Delhi and Hyderabad is ...... km.

5. The income of a person per year is Rs. 4680.

What is his income per month ?

Income per year = Rs. ......

Income per month = Rs. ......

= Rs. ......

6. There are 26 farmers. Each farmer gets 23 bags of paddy. How many bags of paddy do they get in all ?

Number of bags for each farmer = ...

Number of bags for 26 farmers = ...

= ......

EXERCISE

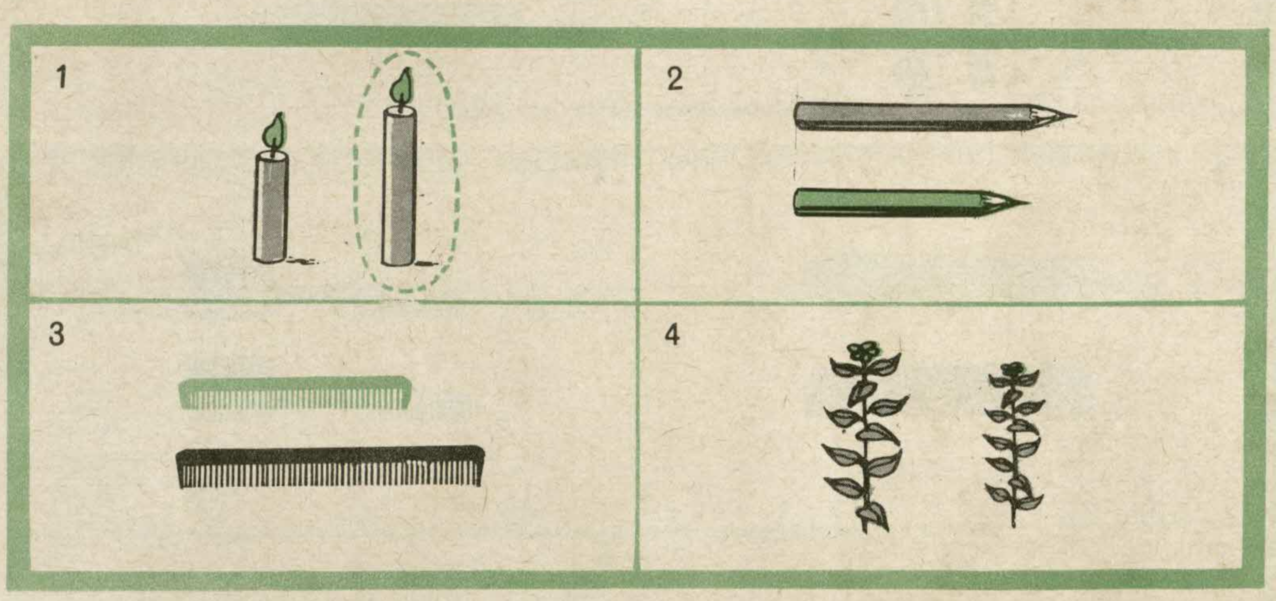
Work out the following in your note book.

1. Each section of a school has 43 pupils. There are 25 sections in the school How many pupils are there in the school?
2. The speed of an aeroplane is 550 km per hour. The plane takes 6 hours from Delhi to Moscow. What is the distance between Delhi and Moscow?
3. A school received 15 boxes of books. Each box had 85 books. How many books did the school get in all ?
4. A train took 6 hours to cover a distance of 348 km. What was the speed of the train ?

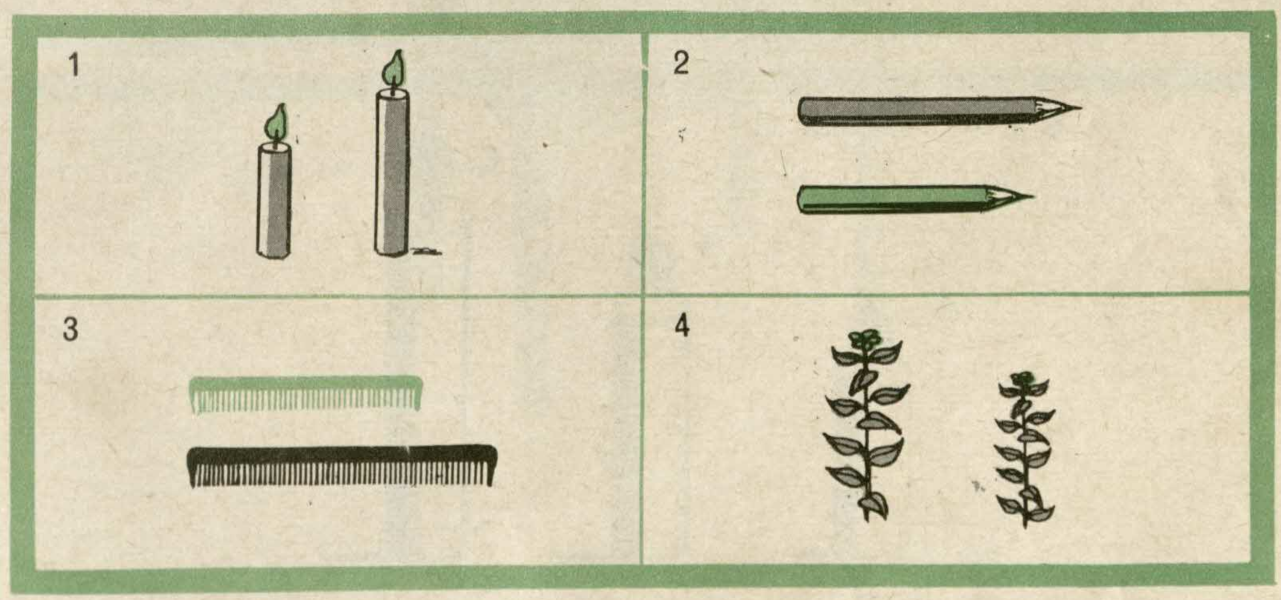
5. A bottle has 195 tablets of medicine. The patient should take 3 tablets per day. For how many days one bottle lasts ?
6. A car needs 1 litre of petrol for every 7 kilometres. What quantity of petrol is necessary for going through a distance of 840 km ?
7. A cardboard box can hold 9 books. There are 360 books to be packed. How many cardboard boxes are needed ?
8. The road tax for a scooter is Rs. 45/-. One day 75 persons paid the road tax for their scooters. What was the total amount of tax collected?
9. A family of 6 members wanted to go from Delhi to Madras and then return to Delhi. The fare from Delhi to Madras and back is Rs. 172. What is the total fare for the complete journey ?
10. A farmer got 26 bags of paddy per acre. The farmer had 43 acres of land. How many bags of paddy did he get in all ?

MEASUREMENT OF LENGTH

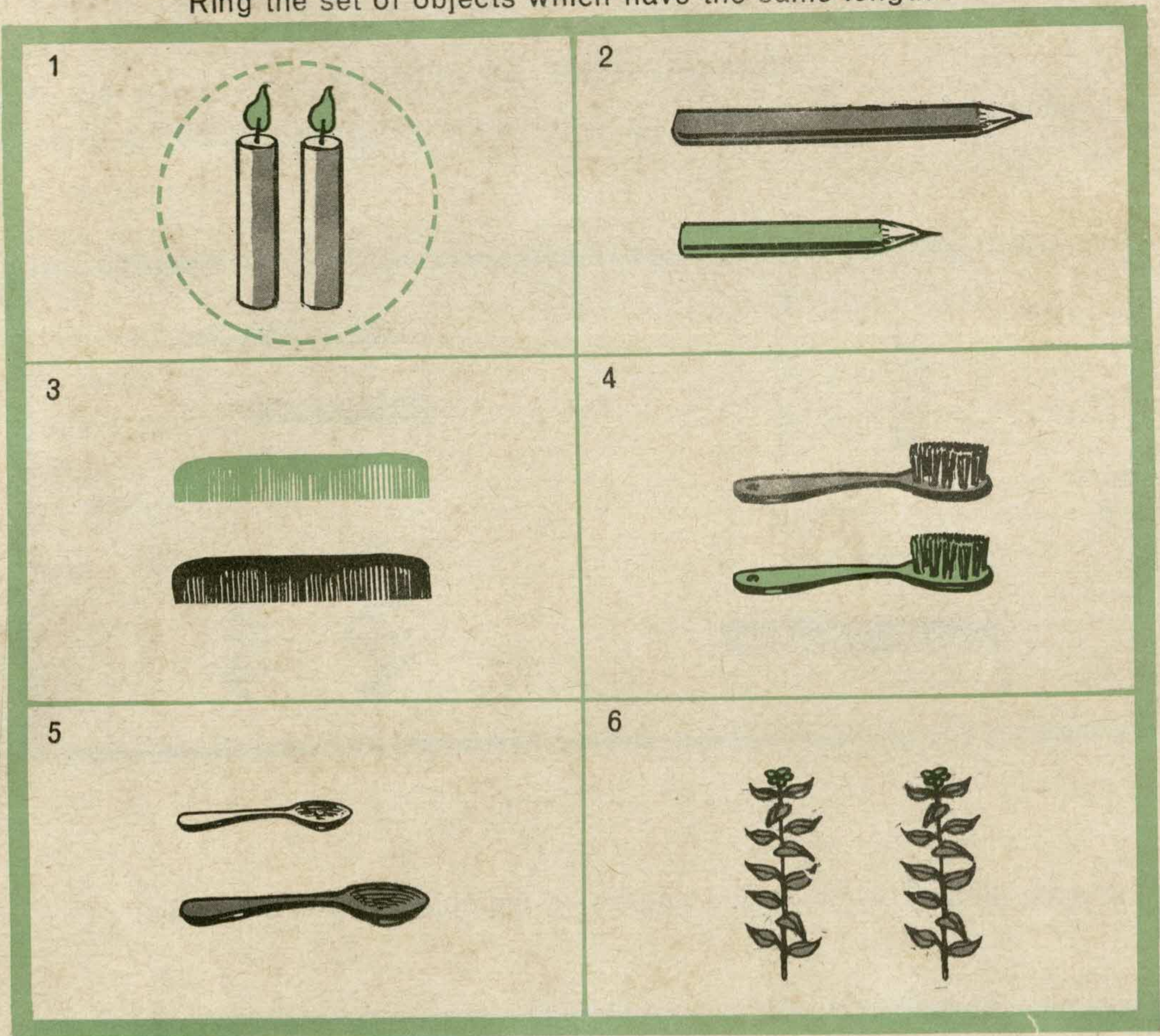
In each picture below draw a ring round the object which is longer :

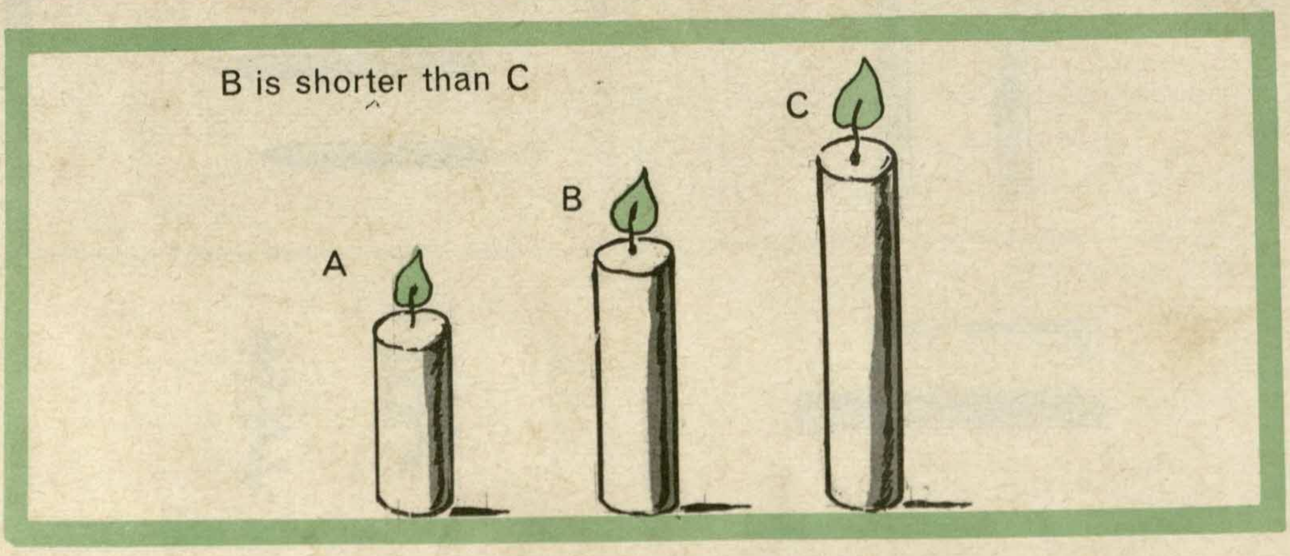


In each picture below draw a ring round the object which is shorter :



Ring the set of objects which have the same length :





B is longer than A

A is ...... than B (longer / shorter)

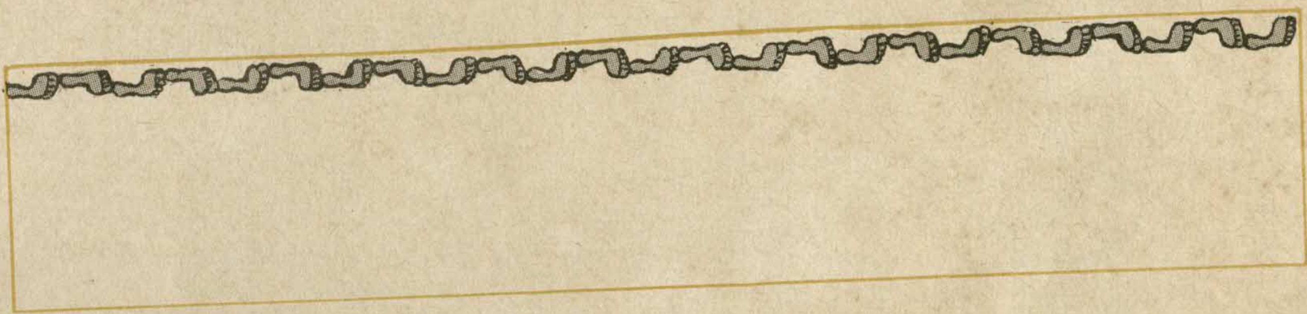
A is ...... than C (longer / shorter)

C is ...... than A (longer / shorter)

C is ...... than B (longer / shorter)

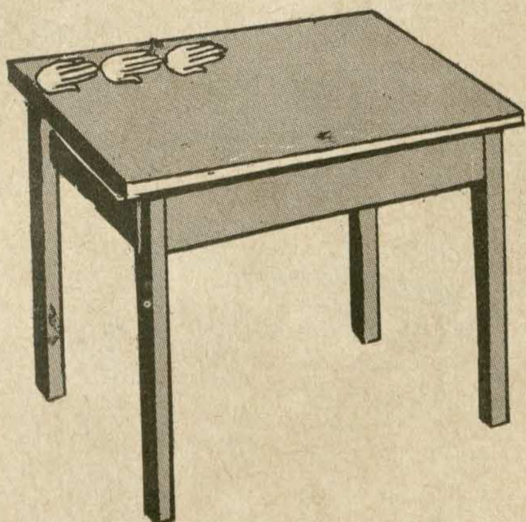
Let us measure length

1. Find the length of the verandah with the help of your feet.



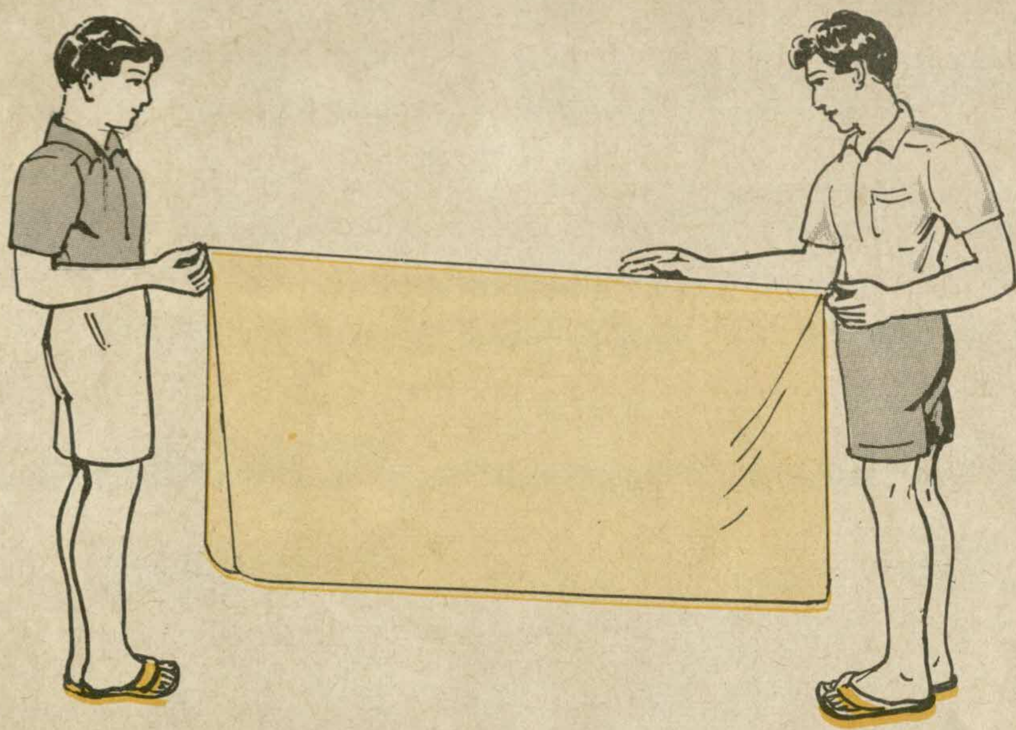
Length of the verandah is 25 

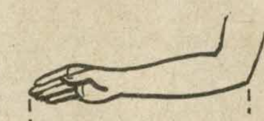
2. Find the length of your teacher's table with the help of your hand.



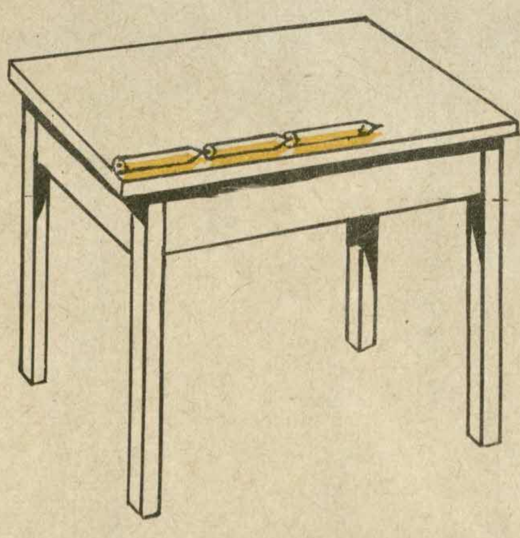
Length of the table is ...... 

3. Take a piece of cloth and measure its length with the help of your arm.



Length of the cloth is .... 

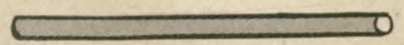
4. Find the length of your teacher's table with the help of your pencil.



Length of the table is .... pencils.

5. Compare your results with the results obtained by other students in the class.
Does each student get the same result ? Yes No

6. Find the length of your class-room with the help of this stick.

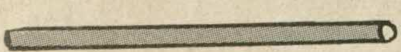


Length of the class-room is ...... sticks.
Let Mohan measure the length with this stick.
Length of the class-room is ...... sticks.
Let Sohan measure the length with this stick.
Length of the class-room is ...... sticks.
Does each student get the same result ? Yes No

7. Measure the length of your class-room with the help of this stick.



Length of the class-room is ...... sticks.
Let Mohan measure the length with this stick.
Length of the class-room is ...... sticks.
Let Sohan measure the length with this stick.
Length of the class-room is ...... sticks.
Does each student get the same result ? Yes No

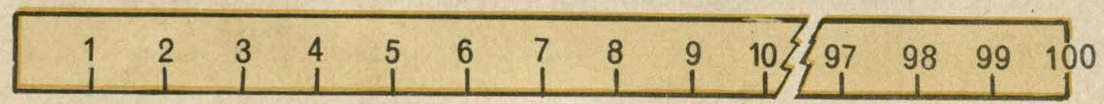
 is the unit of measurement, length of the class-room is...... sticks.

 is the unit of measurement, length of the class-room is ...... sticks.

To get the same answer for the length of an object we must use the same unit of measurement.

The standard unit of measurement that we use in India is called a metre(m).

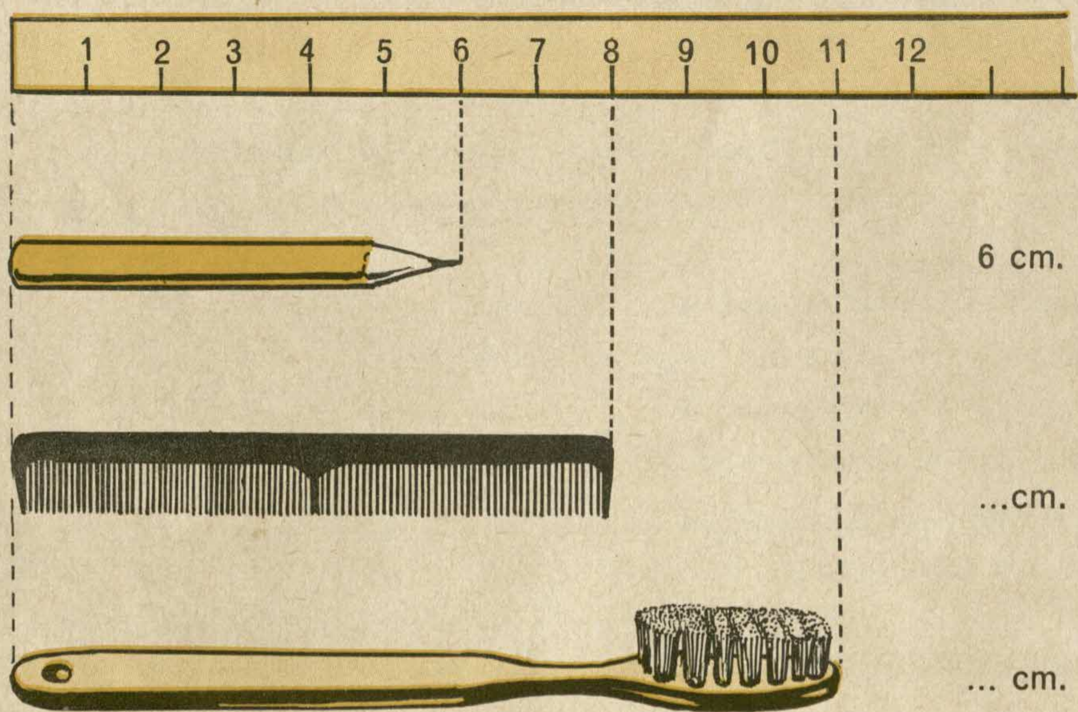
Metre scale



This unit is 1 centimetre long.

How many centimetres are shown on the metre scale ?

100 centimetres = 1 metre



6 cm.

...cm.

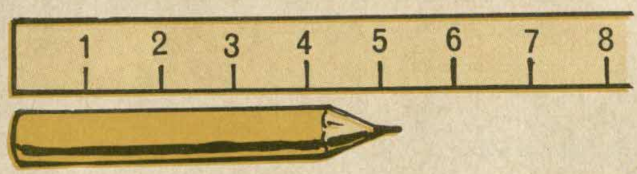
... cm.

Measure the following with the help of your metre scale.

Length of class-room	...... metres ...... cm
Breadth of class-room	...... metres ...... cm
Length of verandah	....
Breadth of verandah	....
Length of Teacher's table	....
Breadth of Teacher's table	....
Height of teacher's table	....
Height of class-room almirah	....

Length of a page of your note-book	....
Breadth of a page of your note-book	....
Length of the window	....
Breadth of the window	....
Your height	....
Your brother's height	....
Length of the door	....
Breadth of the door	....

MEASURING APPROXIMATELY

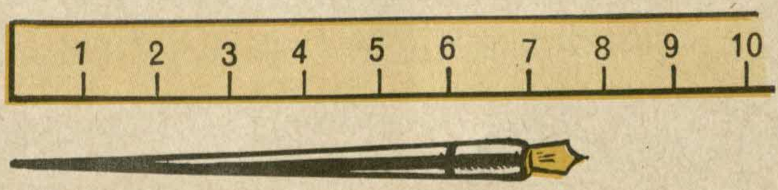


The lèngth of the pencil is more than 5 cm and less than 6 cm .

Is it nearer to 5 cm mark or to 6 cm mark?

It is nearer to 5 cm mark.

The length of the pencil is 5 cm (approximately).

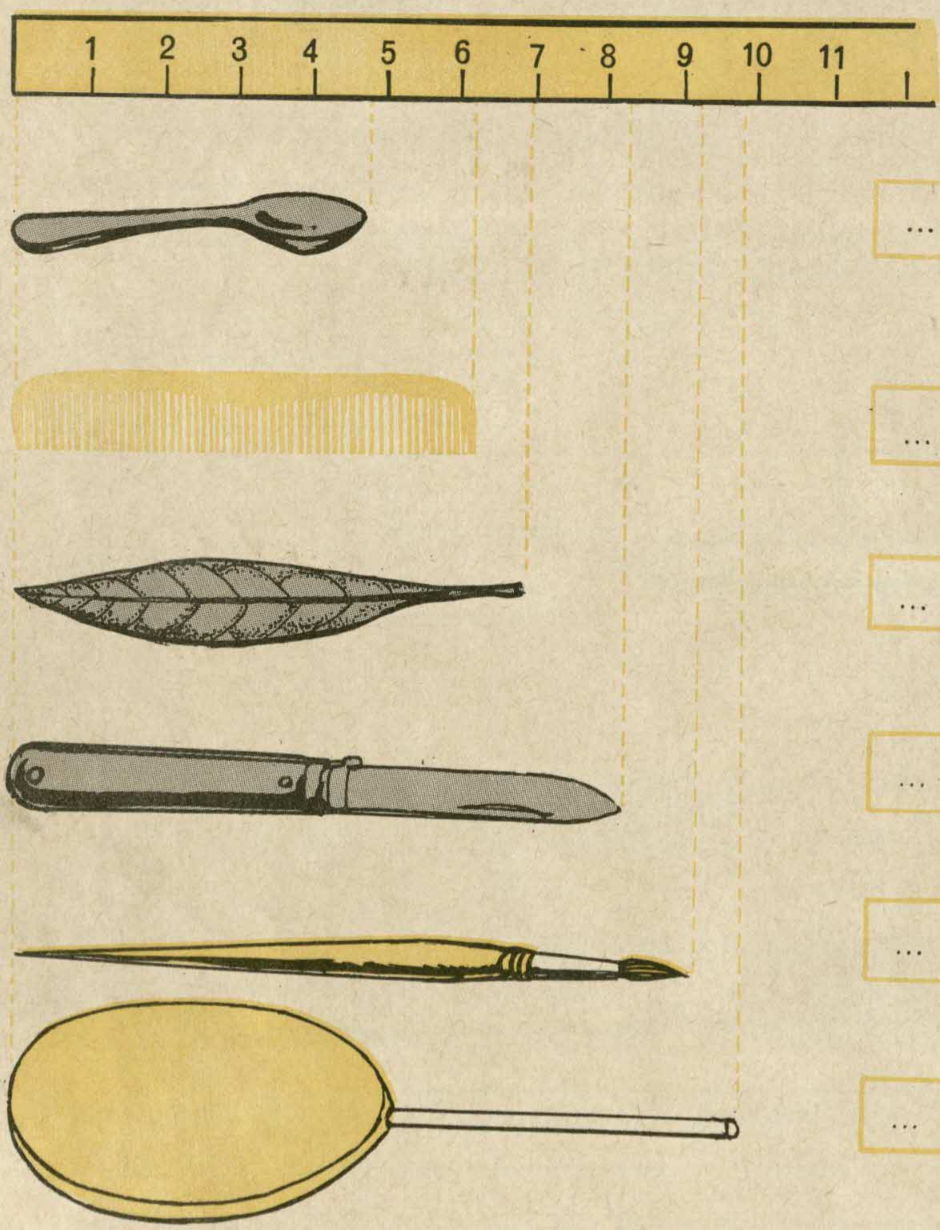


The length of the pen is more than 7 cm and less than 8 cm .

Is it nearer to 7 or to 8?

The length of the pen is ...... approximately.

Measure object in terms of whole number of centimetres.



A ... cm (approximately)

B ... cm (approximately)

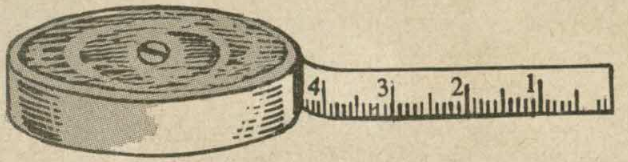
C ... cm (approximately)

D ... cm (approximately)

E ... cm (approximately)

F ... cm (approximately)

MEASURING LONG DISTANCES



Measuring tape

Take a measuring tape.

Measure the length of your class-room.

Length of the class room is .... metres.

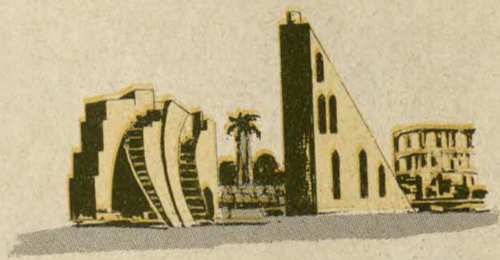
Measure the length of the playfield.

Length of the playfield is .... metres.

Measure the distance of the school canteen from your class-room.

It is .... metres.





Delhi
Red Fort

7,000 metres

New Delhi
Jantar Mantar

Distance from Red Fort to Jantar Mantar is 7000 metres.

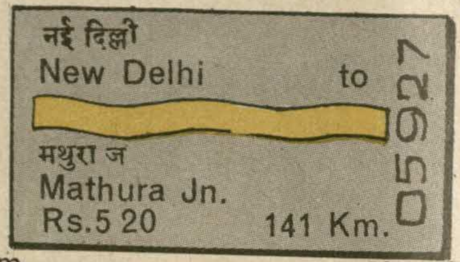
This is a very large number and it is not convenient to speak.

We use a more convenient unit for long distances called Kilometre (Km).

1000 metres = 1 Km.

The distance from Red Fort to Jantar Mantar is 7000 metres or 7 Kilometres.

Distance from New Delhi to Mathura Jn.
is .... km.



Distance of your school from your house is ... km.
Distance of the railway station from your house is ... km.
Distance of your house from your uncle's house is ... km.
Distance of your house from the hospital is ... km.

CHOOSE A SUITABLE UNIT

Which unit (cm, metre, km) would you choose to measure?

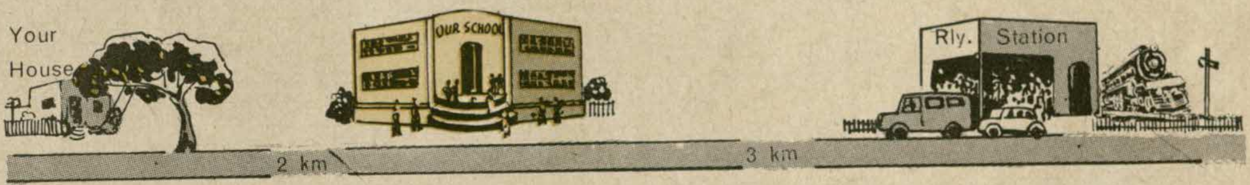
A Your finger.
B A pencil.
C The distance from Delhi to Bombay.
D Length and Breadth of your room.
E A tooth brush.
F Length of a river.
G Length of a mountain.

KILOMETRES, METRES AND CENTIMETRES

5 Kilometres	=	5000 metres			
7 Kilometres	=	...... metres			
6 Kilometres 500 metres	=	6500 metres			
5 Kilometres 200 metres	=	...... metres			
5 Kilometres 20 metres	=	...... metres			
5 Kilometres 2 metres	=	...... metres			
1250 Metres	=	1	Km	250	metres
1105 Metres	=	......	Km	......	metres
2530 Metres	=	......	Km	......	metres
5 Metres	=	500	cm		
7 Metres	=	......	cm		
20 Metres	=	......	cm		
25 Metres	=	......	cm		

6	Metres	20	cm	=	620	cm
6	Metres	2	cm	=	......	cm
10	Metres	25	cm	=	......	cm
650	cm	=	6 metres 50	cm		
605	cm	=	...... metres	cm		
740	cm	=	...... metres	cm		
1280	cm	=	...... metres	cm		
10000	cm	=	...... metres	cm		

ADDING DISTANCES



Rly. Station is at a distance of 5 km from your house.

2 km + 3 km = 5 km

10 metres + 25 metres = 35 metres

75 cm + 10 cm = ...

120 metres + 900 metres = 1120 metres = 1 km 120 metres.

400 metres + 740 metres = ...metres = ...km ...... metres

25 cm + 90 cm = 1 metre 15 cm

30 cm + 80 cm = ... metres ...... cm

200 metres + 875 metres = ... Km ...... metres

ADD THE FOLLOWING

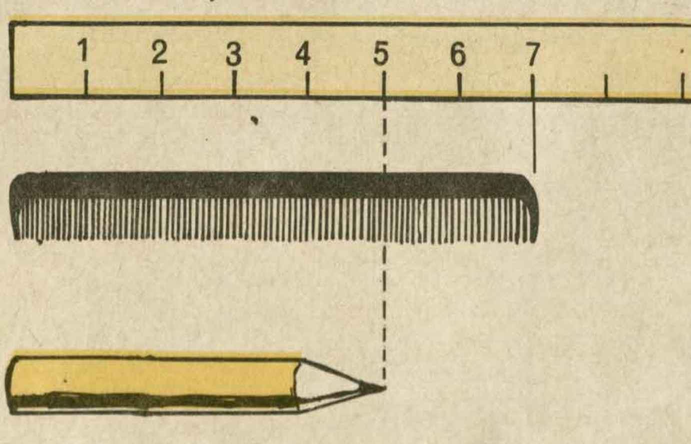
Km	m	Km	m	Km	m
4	500	4	20	3	250
+ 2	200	+ 7	200	+ 2	270
......	......	......	......	......	......

Km	m	Km	m	Km	m
1	700	3	200	6	400
+ 2	500	+ 2	900	+ 9	800
+ 3	100	+ 4	700	+ 3	300
......	......	......	......	......	......

m	cm	m	cm	m	cm
2	50	1	20	6	40
+ 1	20	+ 2	60	+ 2	30
......	......	......	......	......	......

m	cm	m	cm	m	cm
3	70	2	60	5	40
+ 2	90	+ 1	50	+ 6	80
+ 4	50	+ 3	80	+ 9	10
......	......	......	......	......	......

GREATER THAN, LESS THAN AND DIFFERENCE



Length of the comb is 7 cm.

Length of the pencil is 5 cm.

The comb is longer than the pencil by 2 cm.

7 cm – 5 cm = 2 cm

Height of the boy is 150 cm.

Length of the stick is 80 cm.

Boy's height is greater than the length of the stick by ...... cm.

150 cm – 80 cm = ... cm

1 m 50 cm – 80 cm = ... cm

2 metres 60 cm – 80 cm = ...

5 km 500 metres – 800 metres = 4 km 700 metres

4 km 600 metres – 700 metres = ...

4 metres – 70 cm = ...



SUBTRACT:

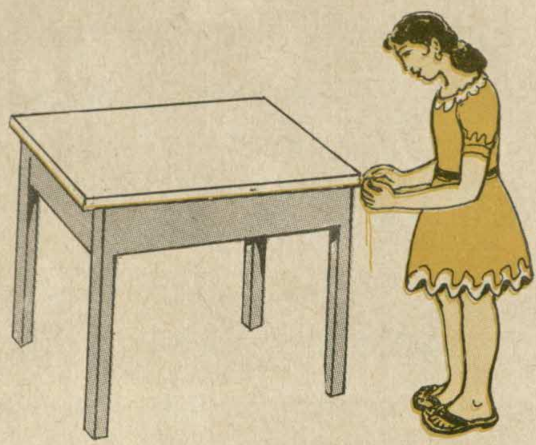
Km	m	Km	m	Km	m
4	600	5	550	3	400
– 2	450	– 1	200	– 2	150
......	......	......	......	......	......

Km	m	Km	m	Km	m
5	200	4	250	6	50
– 2	400	– 2	400	– 4	100
......	......	......	......	......	......

m	cm	m	cm	m	cm
10	25	16	40	6	15
– 5	15	10	25	– 3	10
......	......	......	......	......	......

m	cm	m	cm	m	cm
15	60	5	40	10	35
– 5	70	– 2	45	– 6	50
......	......	......	......	......	......

PERIMETER



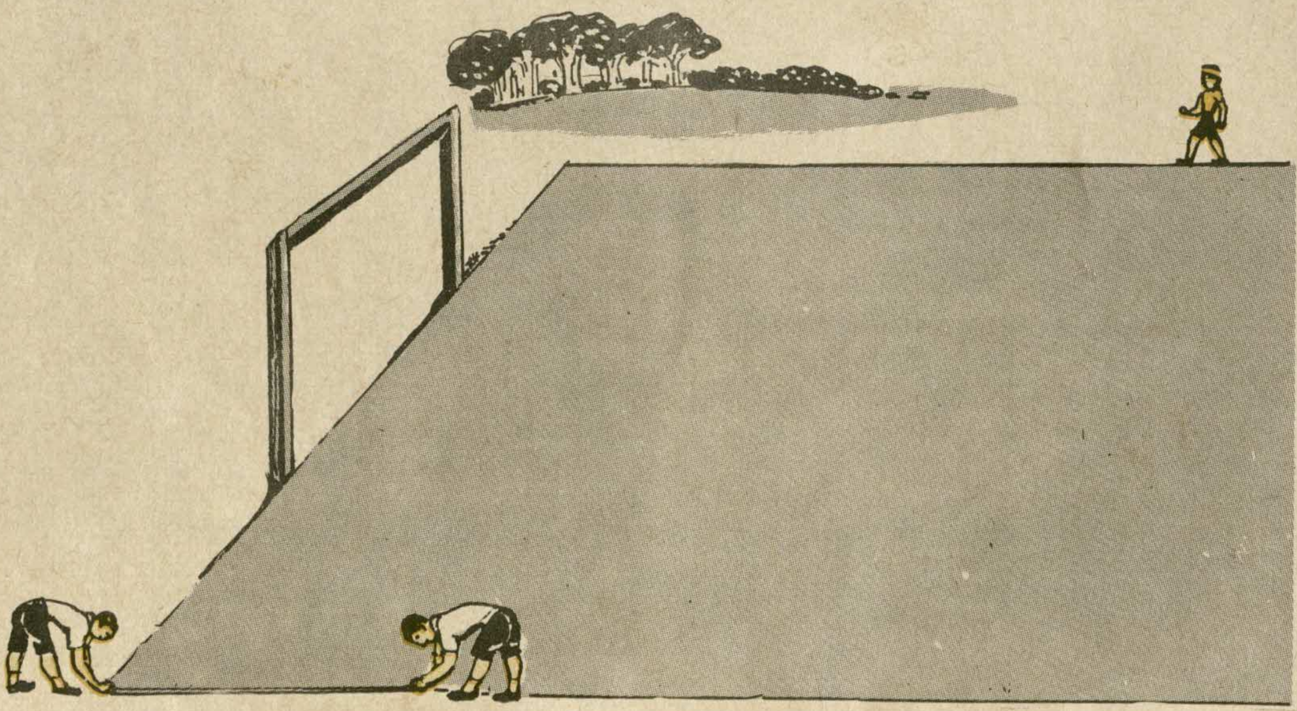
Wrap a string around the table-top.

Measure the string.

The length of the string is 1000 cm.

Perimeter of the table-top is 1000 cm.

Walk along the boundary of your school play ground.



Measure the distance travelled by you.

Perimeter of the play ground is .... metres.

Perimeter of the class-room is .... metres.

Perimeter of the Black-board is ....

Perimeter of the Verandah is ....

Perimeter of the park in your locality is ....

Length of the room is 15 metres.

Breadth of the room is 10 metres.

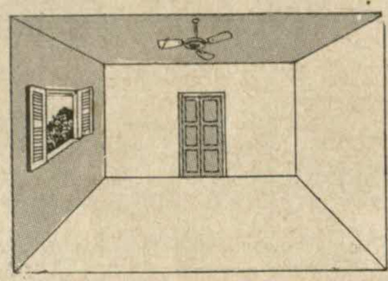
Perimeter of the room is

Sum of the length and breadth of a room is 25 metres.

Perimeter of the room is

Sum of the length and breadth of a room is 20 metres.

Perimeter of the room is



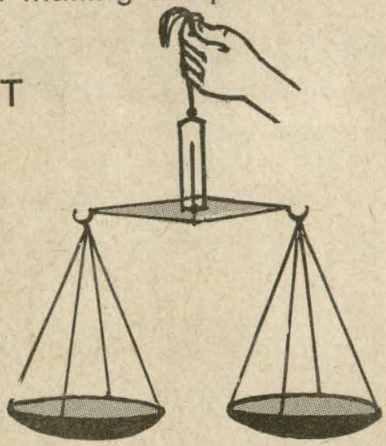
PROBLEMS

1. If you travel 15 km on one day and 20 km on the second day, how many kilometres did you travel in two days ?
2. If you travel 17 km on one day and 25 km on second day, how much farther did you travel on the second day than on the first day ?
3. For seeing a circus you travelled 5 km by bus and 10 km by train. How much distance did you travel for seeing the circus ?
4. For seeing a circus you travelled 16 km . If you travelled 10 km by bus and the rest of the distance by a train, how much distance did you travel by the train ?
5. Ram's height is 140 cm and his father's height is 170 cm. What is their total height ?
6. Mohan's height is 144 cm and Sohan's height is 150 cm. Whose height is greater and by how much ?
7. Shyam's height is 145 cm and Ramesh height is 146 cm. What is their total height ?
8. Sudhir's height is 100 cm and Subodh's height is 98 cm. Whose height is greater and by how much ?
9. Ramesh purchased piece of cloth of length 2 metres for his shirt and a piece of cloth of length 2 metres 50 cm for his pant. What is the total length of two pieces ?
10. The length of the cloth needed for your shirt is 1 metre 50 cm. If you purchase a piece of length 2 metres 25 cm, how much cloth will be left after making the shirt ?
11. Length of the cloth needed for a shirt is 2 metres 15 cm and for the

pant is 2 metres 80 cm. What is the total length of the cloth needed for shirt and pant ?

12. The length of the cloth needed for your pant is 2 metres 25 cm. If you purchase a piece of length 3 metres 10 cm, how much cloth will be left after making the pant ?

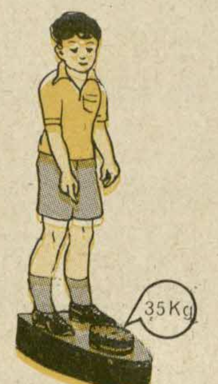
WEIGHT





This is a Kilogramme Weight

MORE THAN, LESS THAN



My weight is 35 Kg

My Teacher's weight is 60 Kg Weight of my teacher is more than my weight or my weight is less than my teacher's weight.



Tommy's weight is............ Kg



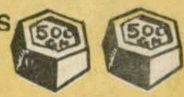
Pusy's weight is .... Kg

Tommy's weight is .... than Pusy's weight,
or Pusy's weight is....... than Tommy's weight.

EQUAL TO

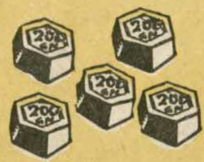


1 kilogramme of sweets weighs as much as 2 half kilogrammes



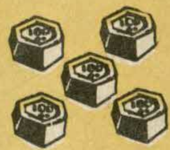


1 kilogramme of sweets weighs as much as 5 two hundred grammes



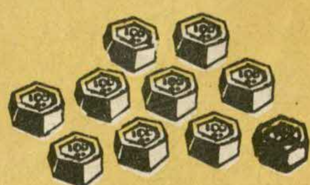


½ kilogramme of sweets weighs as much as 5 one hundred grammes



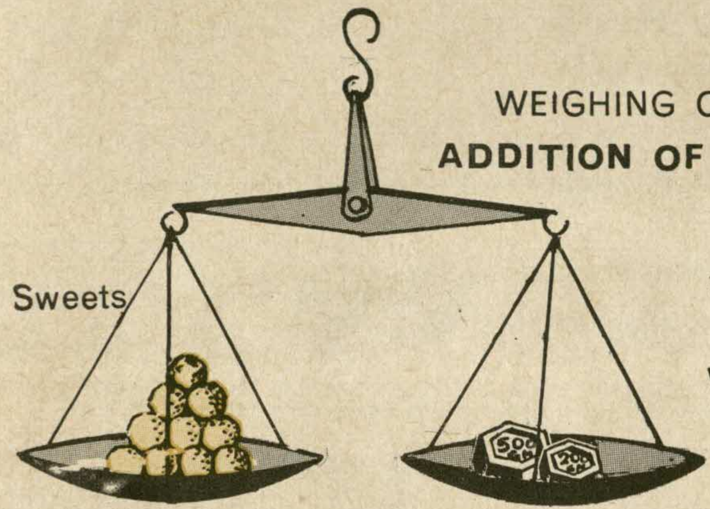


1 kilogramme of sweets weighs as much as ...... one hundred grammes



1 kilogramme weighs as much as 1000 g
one half kilogramme weighs as much as .... g
2 kilogrammes weighs as much as .... g.

WEIGHING OBJECTS
ADDITION OF WEIGHTS

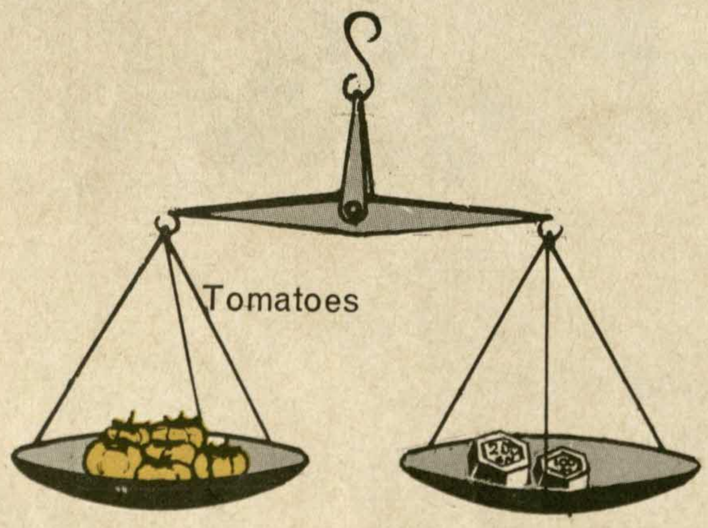


$\frac{1}{2}$ kg + 200 g. = 500 g + 200 g.
= 700 g.

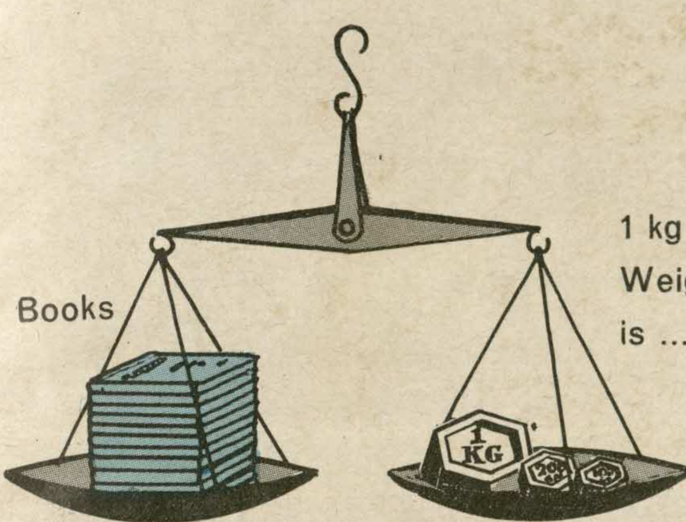
Weight of sweets is 700 g.

$\frac{1}{2}$ kg + 200 g. + 100 g. = 500 g
+ 200 g. + 100 g. = ... g.

Weight of oranges
is ... g.

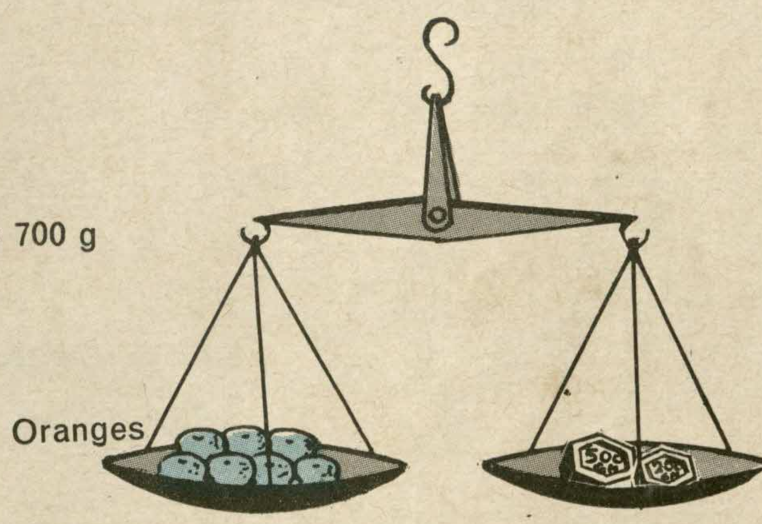


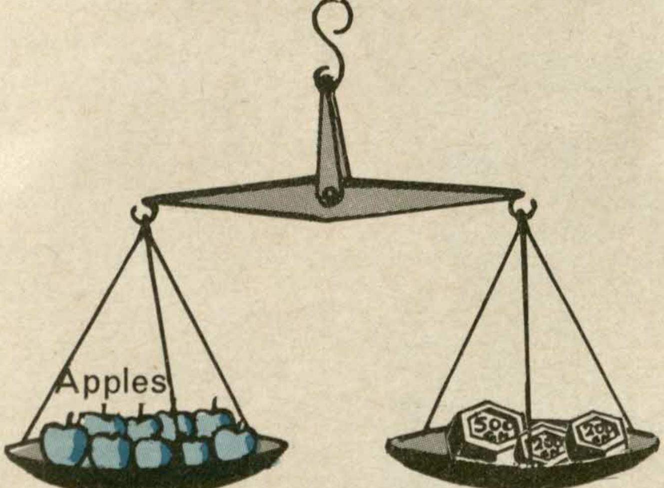
200 gm + 100 g. =.......g
Weight of tomatoes
is ... g.



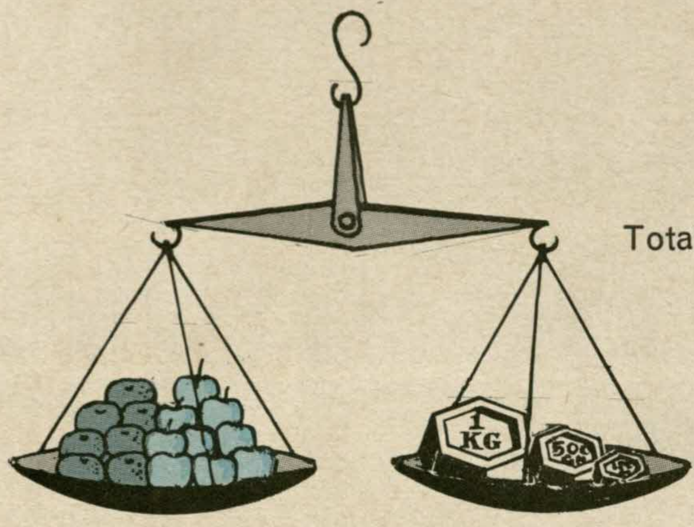
1 kg + 200 g. + 100 g. =...kg+...... g.
Weight of books
is ... kg ... ...g.

Weight of oranges is 700 g





Weight of apples is 900 g.



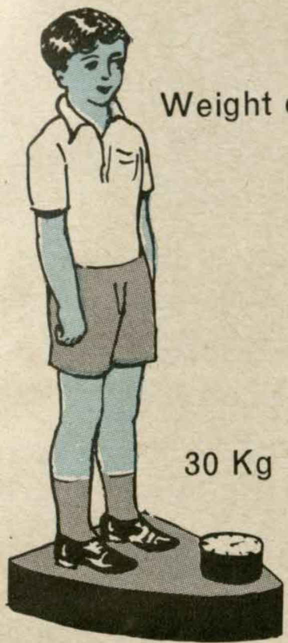
Total weight is 1 kg 600 g

700	g.	+	900	g.	=	1	kg	600	g.
200	g.	+	900	g.	=	1	kg	100	g.
400	g.	+	700	g.	=	...	kg	...	g.
200	g.	+	800	g.	=	...	kg	...	g.

DIFFERENCE

Their weight is 50 Kilogrammes.

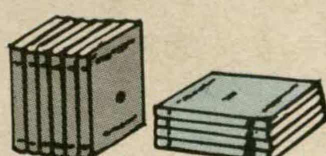


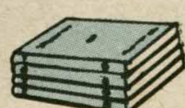


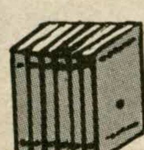
Weight of the boy is 30 Kilogrammes



Weight of the dog is 20 Kilogrammes.

Weight of  is 900 g

Weight of  is 400 g

Weight of  is .... g

Weight of 

is 1kg 500 g

Weight of 

is 1 kg

Weight of 

is ....

PROBLEMS

1. If you purchase 2 kilogrammes 500 g. of pulses and 1 kg 800 gm of rice from a shop and put it in your bag, what is the total weight in your bag ?

2. Mohan purchased the following from a vegetable shop :-

Potatoes	1 kg
Onion	half kg
Tomatoes	200 g.
Chille	100 g.

What is the total weight of vegetables purchased by Mohan ?

3. Ram Purchased 2 kilogrammes 500 g. of sugar. While returning to his home he slipped down and at home weight of the sugar was found to be 2 kilogrammes 300 g. . What is the weight of the sugar lost in the way ?

4. Out of 2 kilogrammes of apples, 200 g. of apples were spoiled. What is the weight of remaining apples ?

5. A bag of wheat weighs 86 kg 500 g. and another bag weighs 82 kg 700 g. . What is the total weight of wheat in the two bags ?

6. A bag of wheat weighs 85 kg 600 g and another bag weighs 87 kg 400 g. . Which bag is heavier and by how much ?

7. A parcel of books weighs 3 kilogrammes 500 g. and another parcel weighs 5 kilogrammes 800 g. . What is the total weight of two parcels ?

8. A parcel weighs 5 kilogrammes 400 g and another parcel weighs 2 kilogrammes 700 g. Which parcel is heavier and by how much ?

9. A coolie can carry a load of 100 kilogrammes at a time. If a box weighs 40 kg 500 g., a holdall weighs 25 kg 400 g. and a suitcase weighs 20 kg 200 g., find out if he can carry all the three pieces at a time.

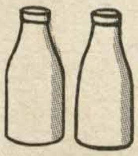
10. A coolie can carry a load of 80 kg at a time. If a box weighs 40 kilogrammes 600 g., a holdall weighs 24 kg 300 g. and a suitcase weighs 20 kg 100 g., find out if he can carry all the three pieces at a time.

LIQUID MEASURE

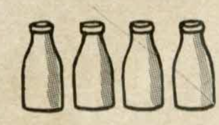
This bottle contains half-litre of milk .



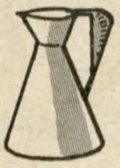
Two bottles contain one litre of milk .



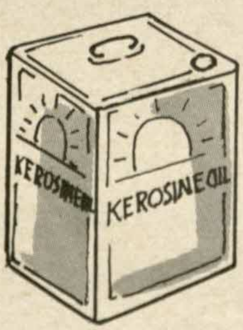
Small bottle contains only quarter litre of milk.
Four small bottles contain one litre of milk.



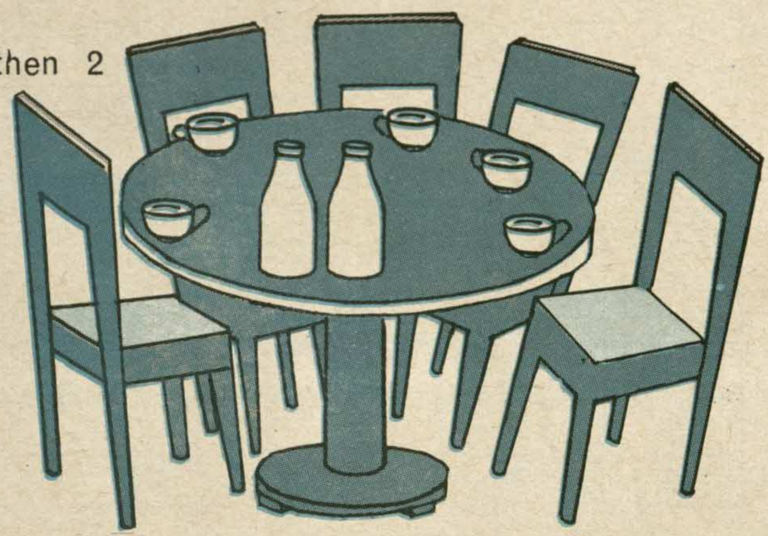
This measuring Jar contains 2 litres of kerosine oil.



9 Jars can fill this tin.
This tin contains...litres of kerosine oil.

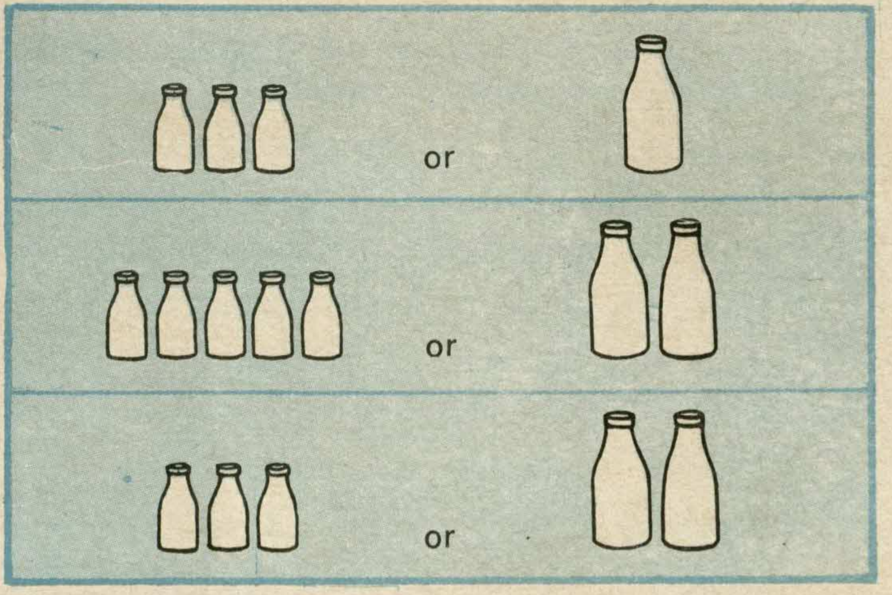


If 1 litre of milk fills 5 cups, then 2 litres will fill ... cups.

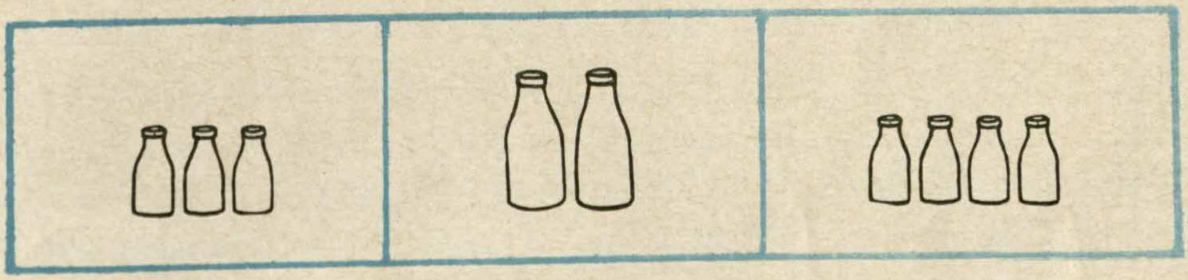


... milk bottles contain 4 litres of milk.
... small bottles contain one litre of milk.
... small bottles contain 3 litres of milk.
8 small bottles contain ... litres of milk.

Which is greater



Ring the picture that shows the total quantity of milk in the bottles as one litre :



CALENDER

Month January					Year 1973	
Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
	1	2	3	4	5	6
7	8	9	10	11	12	13
14	15	16	17	18	19	20
21	22	23	24	25	26	27
28	29	30	31			

We go to school on Monday, ... , ... , ... , ... and ...

The school is closed on ....

There are .... days in a week.

Count the number of months from a calender.

There are .... months in a year.

Count from the calender the number of days in each month.

January has .... days

February has .... days

March has .... days

April has .... days

May has .... days

June has .... days

July has .... days

August has .... days

September has .... days

October has .... days

November has .... days

December has .... days

There are .... days in a year.

——, ——, ——, ——, ——, ——, —— are the months which have 31 days.

——, ——, ——, —— are the months which have 30 days.

February has 28 days.

In a leap Year, February has 29 days.

There are .... days in a leap year.

Remember :

Thirty days hath September,
April, June and November.
All the rest have thirty one,
Except February alone lear
This month has twenty eight days clear
And twenty nine days in a leap year.

PROBLEMS

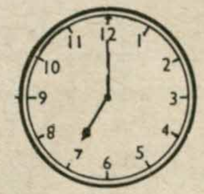
1. Ram attended school on Monday. He then took 3 days leave to attend his brother's marriage. On which day does he come to school again ?
2. A student of class II studies general science on Tuesday and then he studies it again after four days. Find the day when he studies it again.
3. A school has seven days winter holidays. If the school closes on Tuesday, find the day when will it reopen.
4. A school has 14 days autumn holidays. If the school closes on Thursday, find when will it reopen .

We have the same day after every seven days.

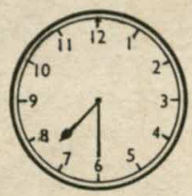
5. If a school closes for 10 days begining from 24th December, find the date on which it will reopen.
6. If a boy starts on a holiday trip on 20th September and remain away from school for 20 days, find the date on which he will again attend the school.
7. A ration card holder can draw sugar after every 4 weeks. If he drew his ration on 10th of March last time, when can he draw his ration once again ?
8. If a school closes for summer vacations for 8 weeks beginning from 10th May, when will it reopen ?


7 o'clock
... o'clock
... o'clock
... o'clock
... o'clock
... o'clock
... o'clock
... o'clock

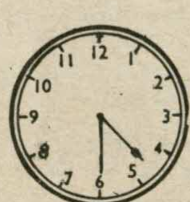
Half an hour



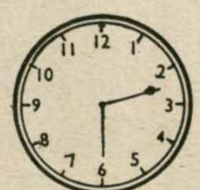
7 o'clock



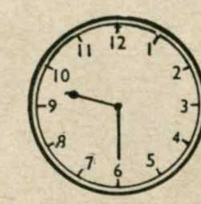
Half past seven



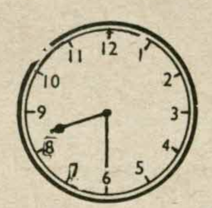
Half past ...



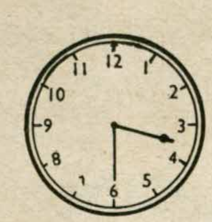
Half past ...



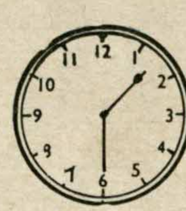
Half past ...



Half past eight
or
30 minutes past eight
or
8-30



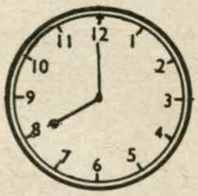
Half past ...
or
... minutes past ...
or



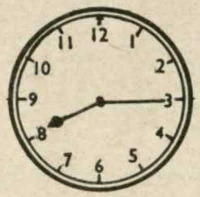
Half past ...
or
... minutes past ...
or

Half an hour has 30 miuntes
An hour has 60 minutes.

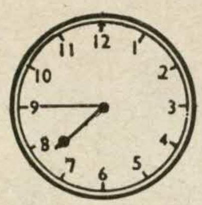
Quarter of an hour



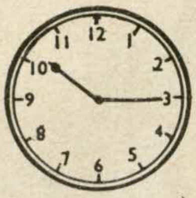
8 o'clock



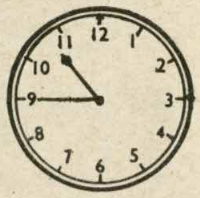
Quarter past eight



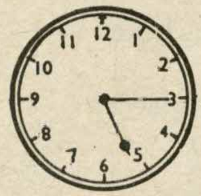
Quarter to eight



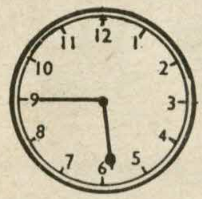
Quarter past .....



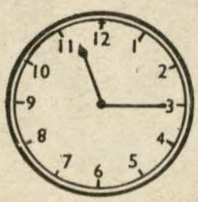
Quarter to ....



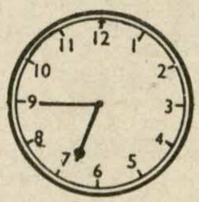
Quarter........



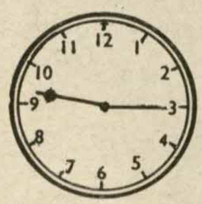
Quarter........



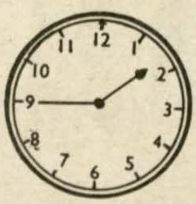
Quarter past eleven or
15 minutes past eleven
or 11-15



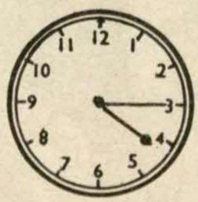
Quarter to seven or
15 minutes to seven
or 6-45



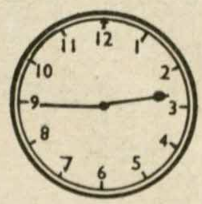
Quarter past ......
or____________________
or____________________



Quarter to ......
or____________________
or____________________

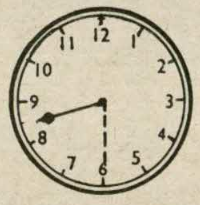


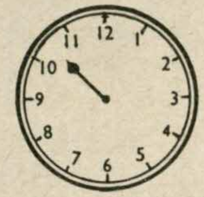
Quarter ....
or ____________________
or ____________________

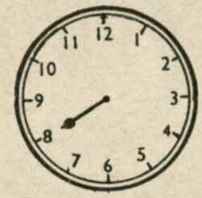


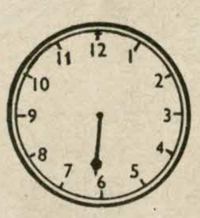
Quarter ....
or____________________
or ____________________

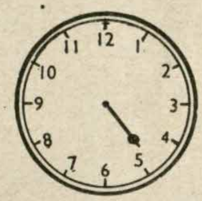
Draw the long hand to show the correct time.

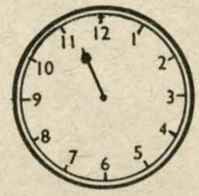

Half past eight

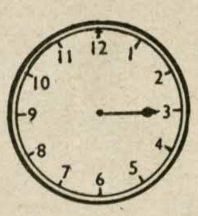

Half past ten

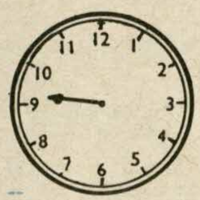

8. O'clock

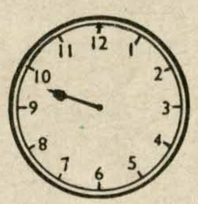

Quarter past six

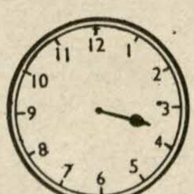

Quarter to five

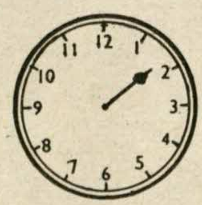

Quarter past eleven

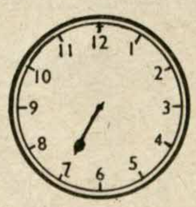

3 O'clock


Quarter past nine.

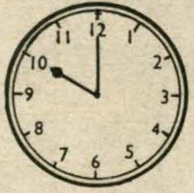

Quarter to ten


Half past three

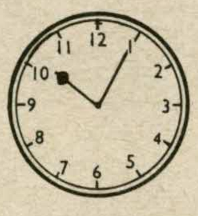

Quarter to two


7 O'clock

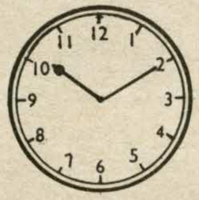
HOURS AND MINUTES



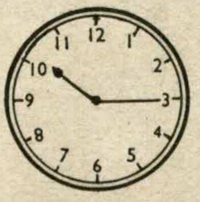
10 o'clock
or 10-00



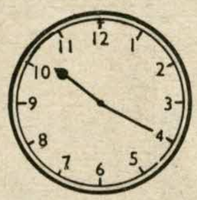
5 minutes past ten
or 10-05



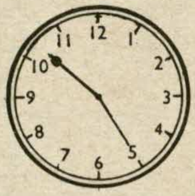
10 minutes past ten
or 10-10



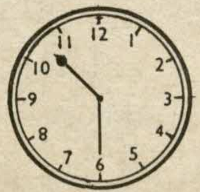
15 minutes
past ten
or 10-15



20 minutes
past ten
or 10-20

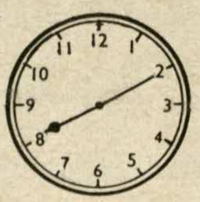


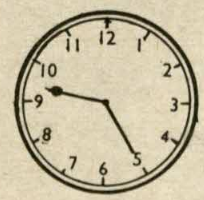
25 minutes
past ten
or 10-25

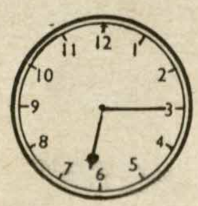


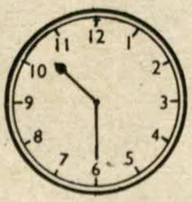
30 minutes
past ten
or 10-30

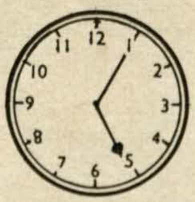
READ THE TIME

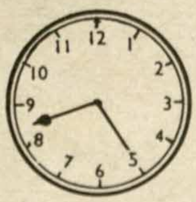




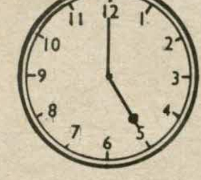




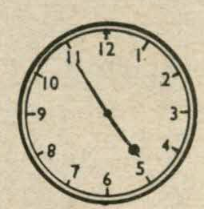




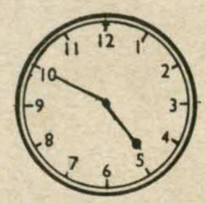
HOURS AND MINUTES



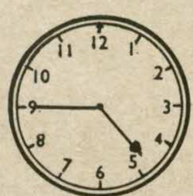
5 o'clock
or 5-00



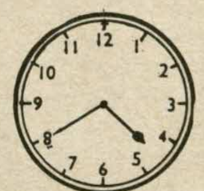
5 minutes to five
or 4-55



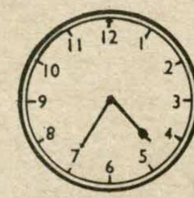
10 minutes to five
or 4-50



15 minutes to five
or 4-45

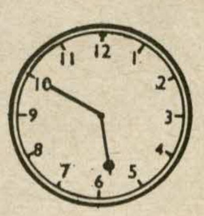


20 minutes to five
or 4-40

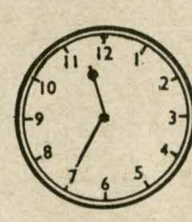


25 minutes to five
or 4-35

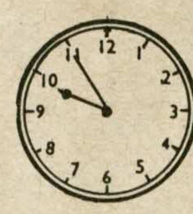
READ THE TIME



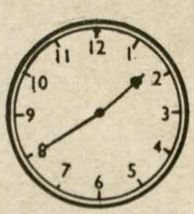
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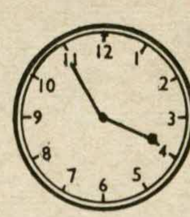
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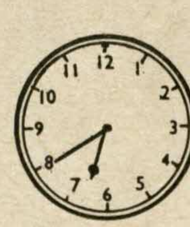
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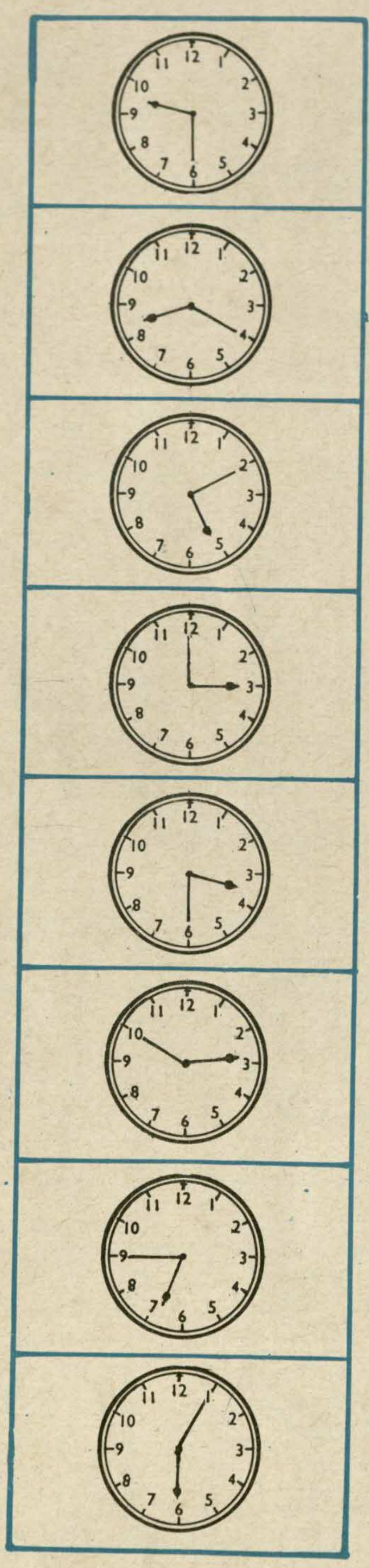
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8-20

5-10

9-30

3-30

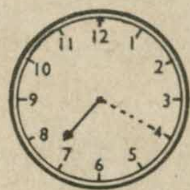
3-00

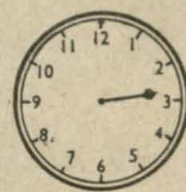
2-50

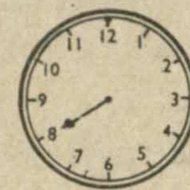
6-05

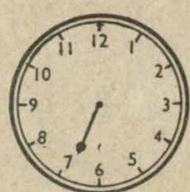
6-45

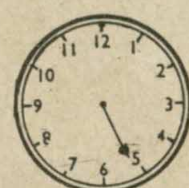
DRAW THE LONG HAND TO SHOW THE CORRECT TIME

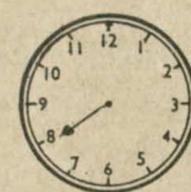

20 minutes past seven

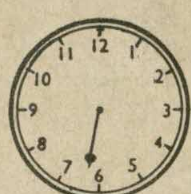

10 minutes to three

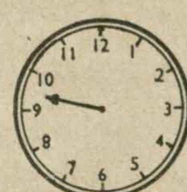

8 o'clock

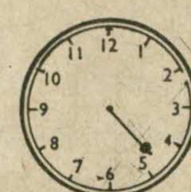

10 minutes to seven

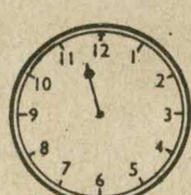

10 minutes past five

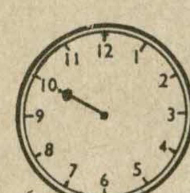

5 minutes to eight

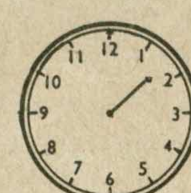

15 minutes past six


25 minutes past nine.


15 minutes to five


30 minutes past eleven


10 o'clock


20 minutes to two

PROBLEMS

1. A boy started from home to school at quarter to ten in the morning and he took 20 minutes to reach the school. When did he arrive at the school ?
2. A bus starts from Sarojininagar at 5 minutes past ten. If it takes 40 minutes to reach Red Fort, when will it reach Red Fort ?
3. The time of arrival of a train at New Delhi station is half past five. When will it arrive at the station if it is reported to be 45 minutes late ?
4. An aeroplane leaves New Delhi at 8-30 in the morning and reaches Bangalore after 4 hour 45 minutes. At what time does it arrive at Bangalore ?
5. A birthday party started at 5-15 in the evening and continued for 3 hours 30 minutes. When did it come to an end ?
6. In 1972, the Republic day parade in New Delhi started at 9-30 in the morning and ended after 2 hours 10 minutes. When did it come to an end ?
7. A boy started from home at 10-20 and reached school at 10-45. How much time has he taken in reaching the school ?
8. A bus starts from Lajpatnagar at 9-05 and reaches Red Fort at 9-55. How much time does the bus take from Lajpatnagar to Red Fort ?
9. The correct time of arrival of a train at New Delhi station is 5-30. On a particular day it reaches the station at 5-55. By how much time is the train late ?
10. An aeroplane leaves New Delhi at 8-10 and reaches Hyderabad at 10-55. How much time does it take to reach Hyderabad ?
11. A birthday party started at 5-10 in the evening and ended at 8-50. For how much time, did the party continue ?
12. In 1972, the Independence day celebrations in Delhi started at 9-30 in the morning and ended at 11-40. Find the time spent on the celebrations.

Money



Two fifty-paise coins make one rupee.

1 rupee = 100 paise

Ring the coins that make one rupee and then find the value of each collection :





Re. 1 and 50 paise — Rs. .... and .... paise

150 paise = Re 1 and 50 paise — 110 paise =...........



Rs .... and .... paise
120 paise =................



Rs. .... and .... paise
115 paise =................

Cross the coins needed for the given value :

75 paise



Re. 1 and 25 paise





We get ten one-rupee notes in exchange for one ten-rupee note.
We get.....two-rupee notes in exchange for ten rupee note.
We get.....five rupee notes in exchange for one ten-rupee note.
Ten ten-rupee notes make hundred rupees.
Five two-rupee notes make ....rupees.
............two-rupee notes make fifty rupees.
............Five-rupee notes make hundred rupees.

Match the collection of equal value



Find by trial and error :

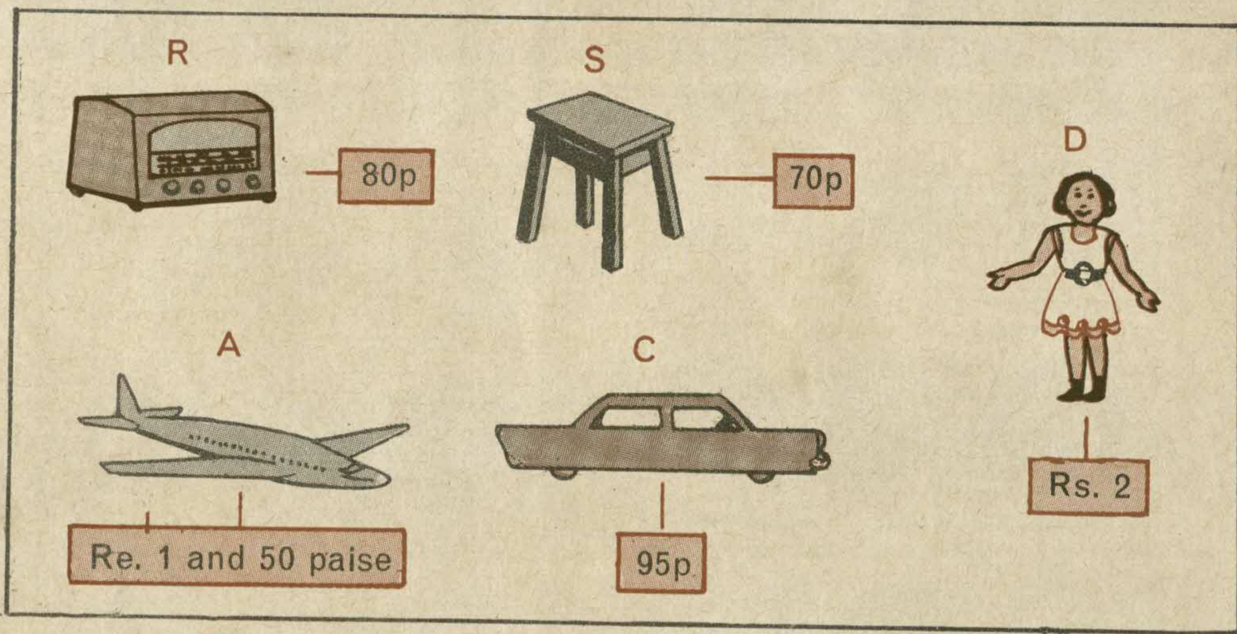
(i) Three coins to make one rupee.

(ii) Six coins to make one rupee.

(iii) Fifteen coins to make one rupee.

(iv) 30 notes to make 50 rupees.

(v) 4 notes to make 15 rupees.



	Rs	P
R	0	80
S	0	70
Total	1 —	50

	Rs	P
S	0	70
A	1	50
Total	...	...

	Rs.	P
C	...	...
D	...	...
Total	...	...

	Rs	P
D	...	...
A	...	...
Total	...	...

	Rs	P
D	...	...
S	...	...
Total	...	...

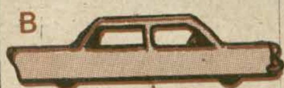
	Rs	P
R	...	...
D	...	...
Total	...	...

	Rs	P
S	...	...
C	...	...
Total	...	...

	Rs	P
R	0	80
S	0	70
A	1	50
Total	3 —	00

	Rs	P
C	...	...
S	...	...
D	...	...
Total	...	...

Ring the coins that make the correct change

Item purchased	Amount given	Change to be returned	Rs. paise
A  20p Rs. P 0 20	 Rs. P 0 50	 Rs. ...... P 0 30	0 50 (–) 0 20 0 30
B  Rs. 1.25 Rs. P 1 25	 Rs. P 2 00	 Rs P 0 75	Rs. paise 2 00 (–) 1 25 ... ...
C  80p Rs. P	 Rs. P	 Rs P	Rs. paise 1 00 (–) 0 80 ... .
D  Rs. 2.30 Rs. P	 Rs. P	 Rs P	Rs. paise 3 00 (–) 2 30 ... ...

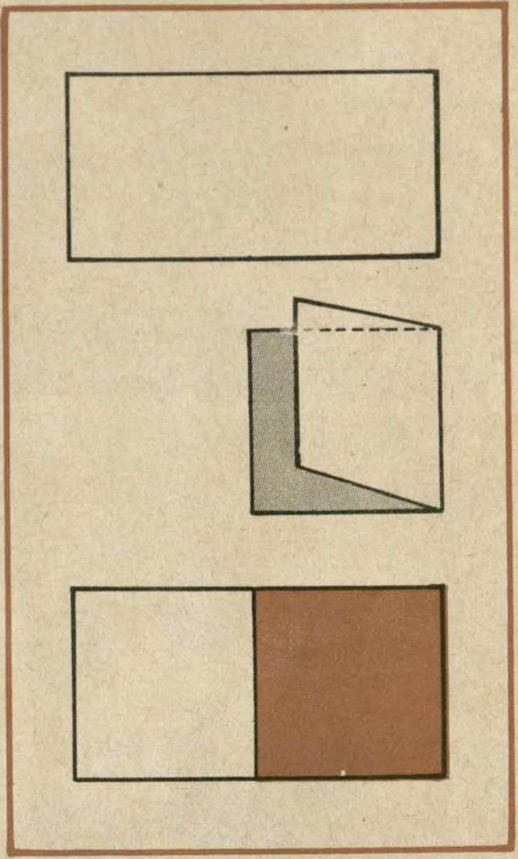
PROBLEMS INVOLVING MONEY

1. One toffee costs 10 paise. How much will 4 toffees cost ?
2. A mango costs 25 paise. How much will 6 mangoes cost ?
3. A pencil costs 15 paise. How much will 12 pencils cost ?
4. A comb costs 20 paise. How much will 6 combs cost ?
5. A handkerchief costs 60 paise. How much will 6 handkerchiefs cost ?
6. A notebook costs 75 paise. I buy 5 notebooks and give a five-rupee note to the shopkeeper. How much money will be returned by the shopkeeper ?
7. Salt cost 25 paise per kg. I buy two packets of 2 kg each. How much should I pay to the shopkeeper ?
8. One kilogramme of sweets cost Rs. 8/-. I buy 2 kilogrammes and give to the shopkeeper two ten-rupee notes. How much money will be returned by the shopkeeper ?
9. 100 gm of ground-nuts costs 30 paise. How much will 400 gm cost ?
10. The postal charges for a parcel weighing 100 gm are 60 paise. What will be the charges for a parcel weighing 500 gm ?
11. One kilogramme of wheat costs 90 paise. How much will a bag containing 100 kg cost ?
12. A long cloth costs Rs. 4/-. a metre. How much will 15 metres of long cloth cost ?
13. Half litre of milk costs 60 paise. How much will 2 litres of milk cost ?
14. One kilogramme of mangoes costs Rs. 2/-. and one kilogramme of apples costs Rs. 4/-. I buy 3 kilogrammes of mangoes and 2 kilogrammes of apples. How much money should I pay to the shopkeeper?
15. Cloth of shirts costs Rs.3/-.a metre and cloth of pant costs Rs. 10/- a metre. I purchase a piece of 3 metres for shirt and a piece of 3 metres for pant. How much money will be returned by the shopkeeper if I pay to him 4 ten-rupee notes ?

FRACTIONS

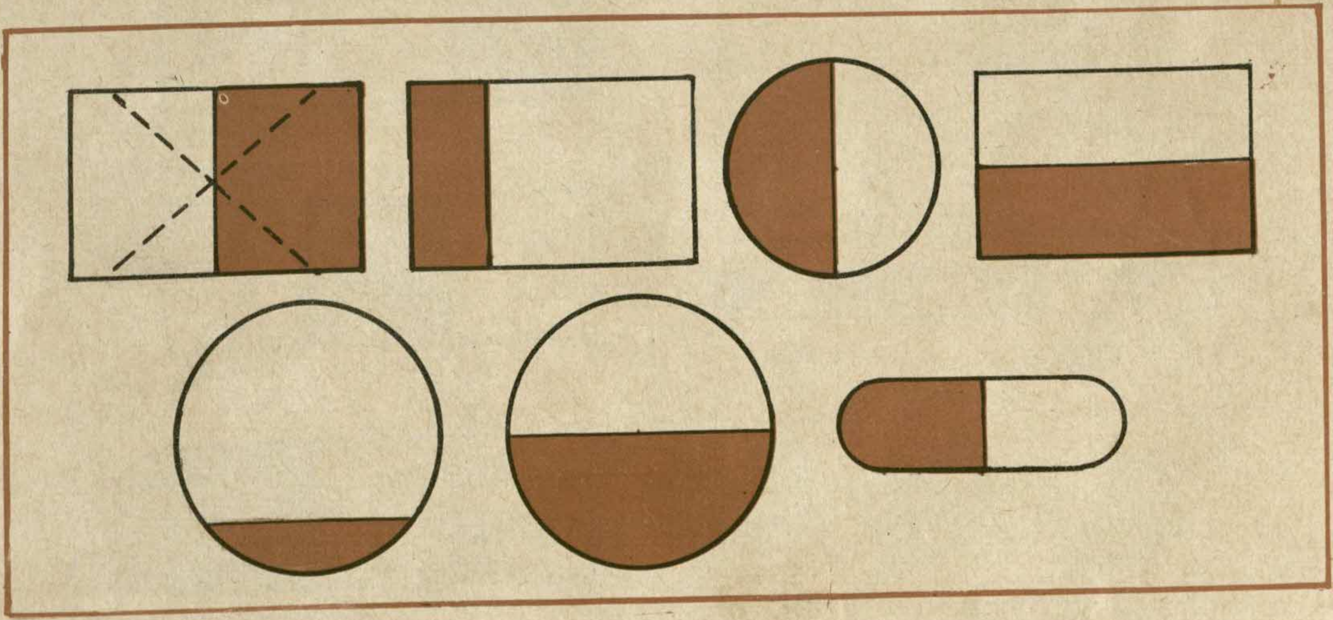
ONE HALF

Take a piece of paper and fold it into two parts so that one covers the other completely as shown in figure. Unfold the paper and shade one of the two parts.
Each part is one half of the piece of paper.

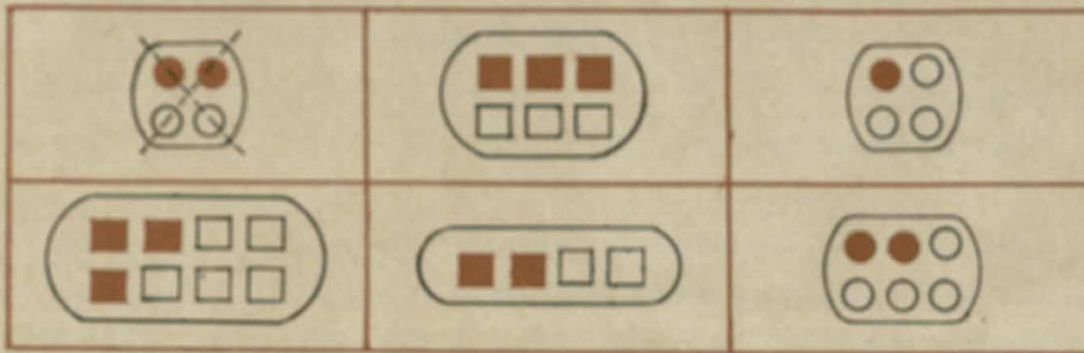


We write one half as $\frac{1}{2}$

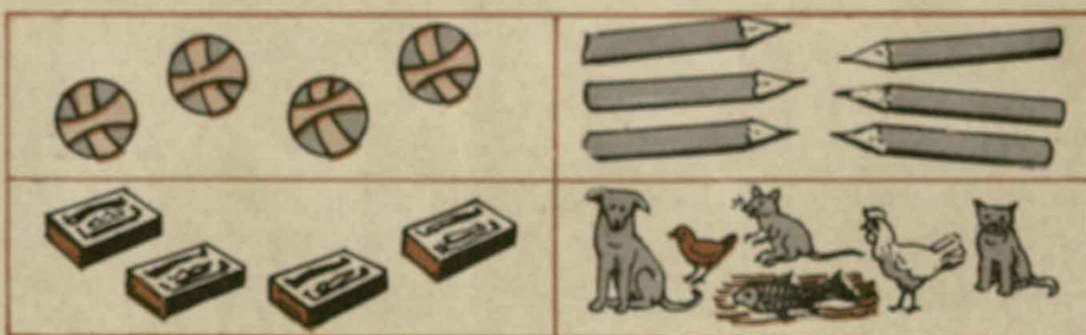
Cross the pictures having one half as shaded portion.



Cross the picture in which half the number of members are coloured.

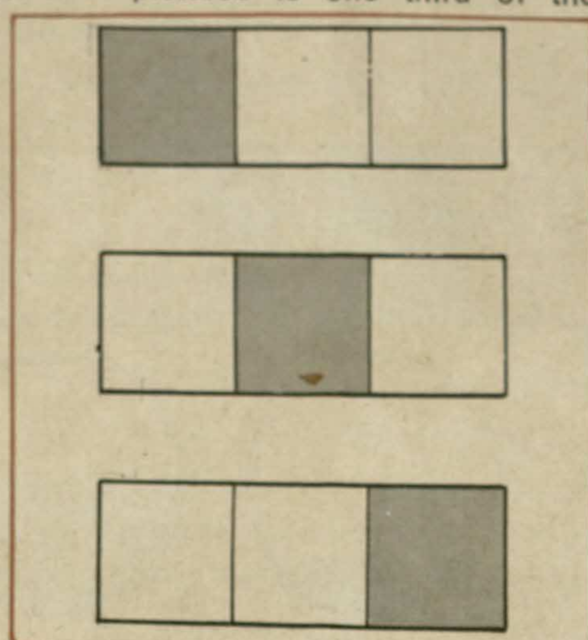


Ring half the number of objects in the following pictures in as many ways as you can .



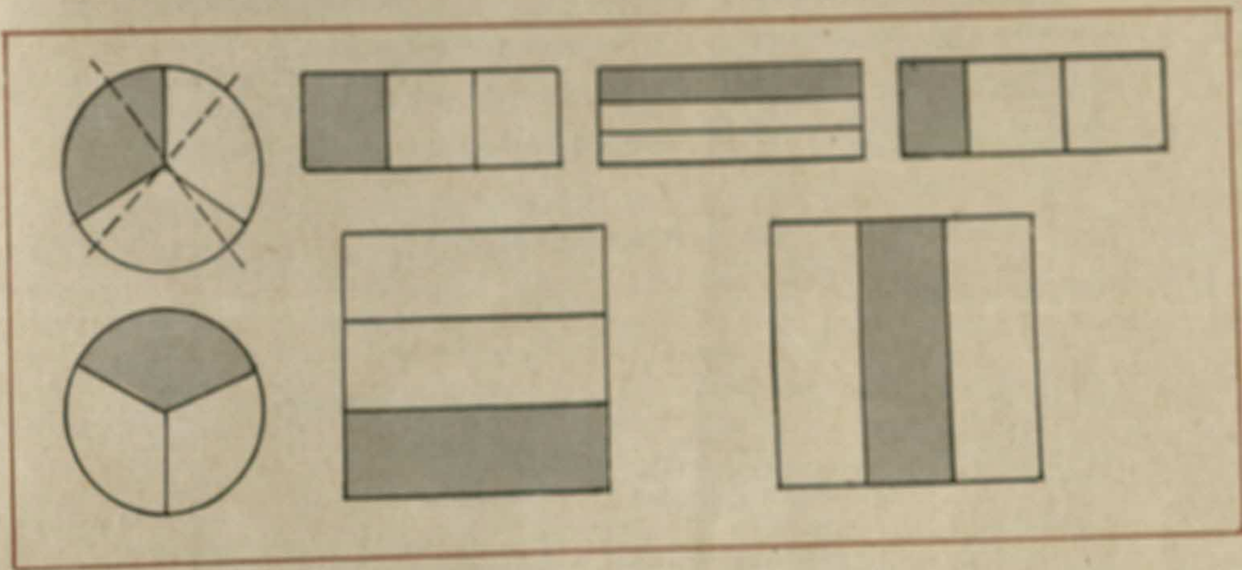
One third

Divide a piece of paper into three parts such that they cover each other. The shaded portion in each of the three pictures is one third of the piece of paper.

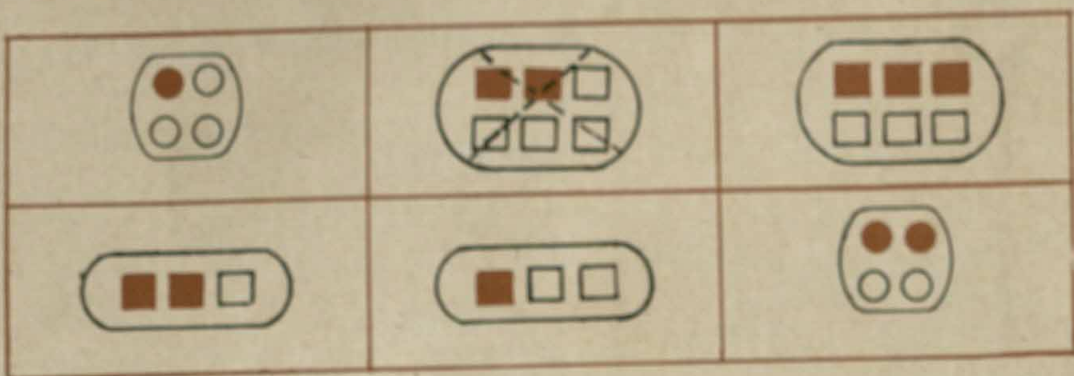


We write one third as $\frac{1}{3}$

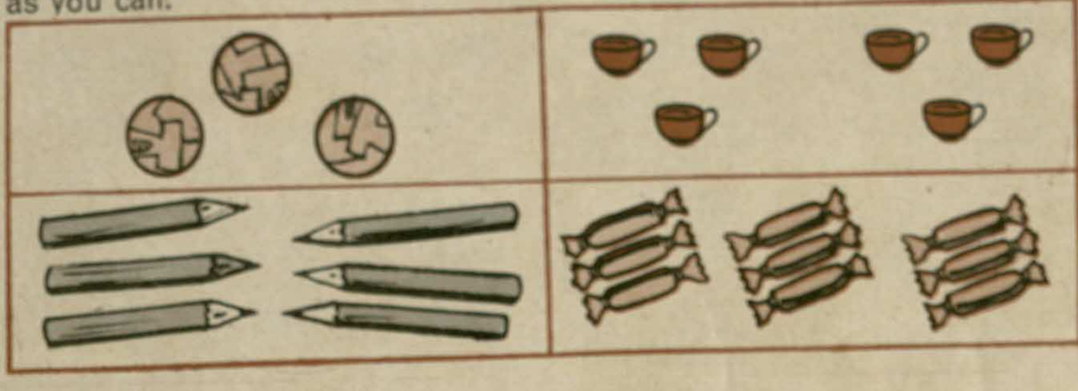
Cross the pictures having one third as shaded portion.



Cross the pictures in which one third the number of members are coloured.



Ring one third the number of objects in each case in as many ways as you can.



Two thirds



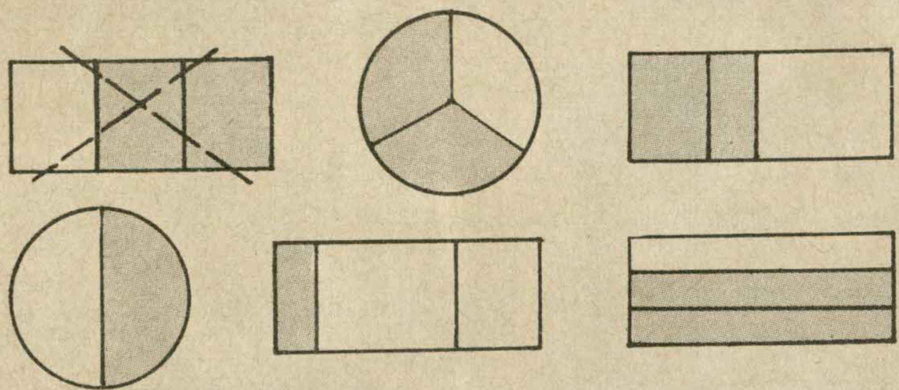
In the adioining picture, shaded portion  shows one third of the whole picture.

 shows another one third of the whole picture

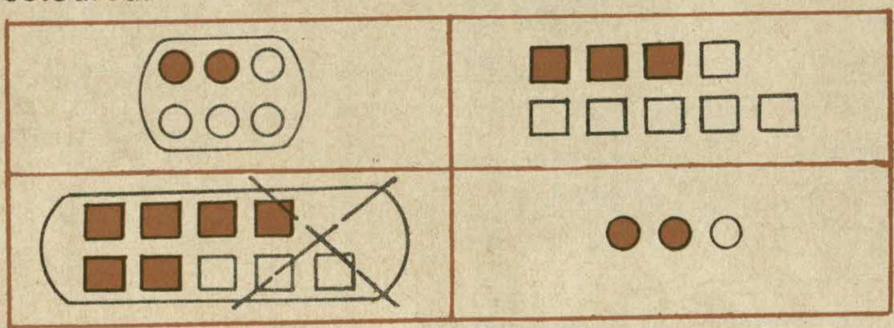
 The total shaded portion shows two thirds of the whole picture.

We write two thirds as $\frac{2}{3}$

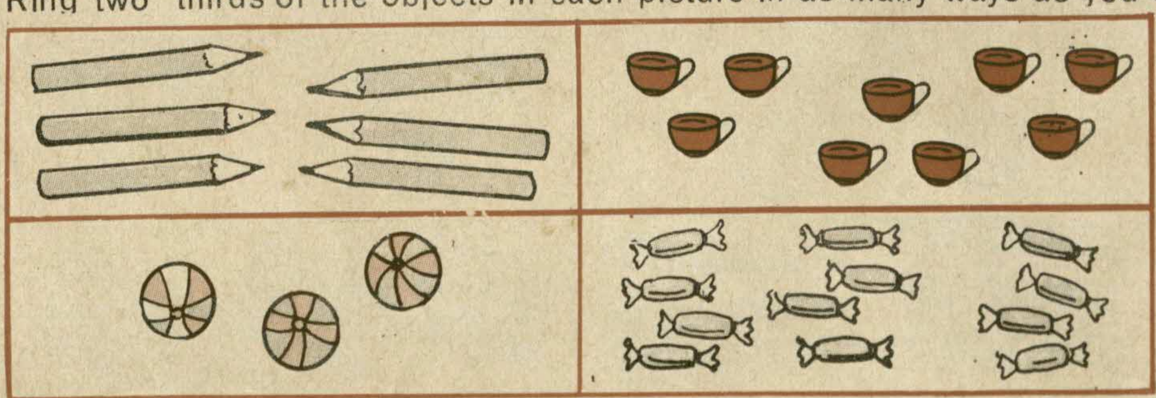
Cross the pictures which show two thirds as shaded.



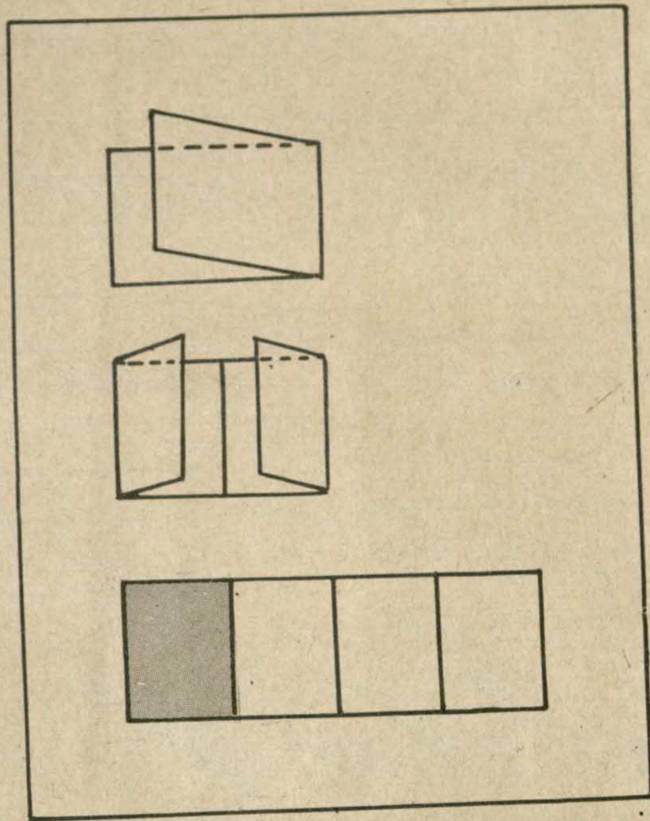
Cross the picture in which two thirds the number of members are coloured.



Ring two thirds of the objects in each picture in as many ways as you can.



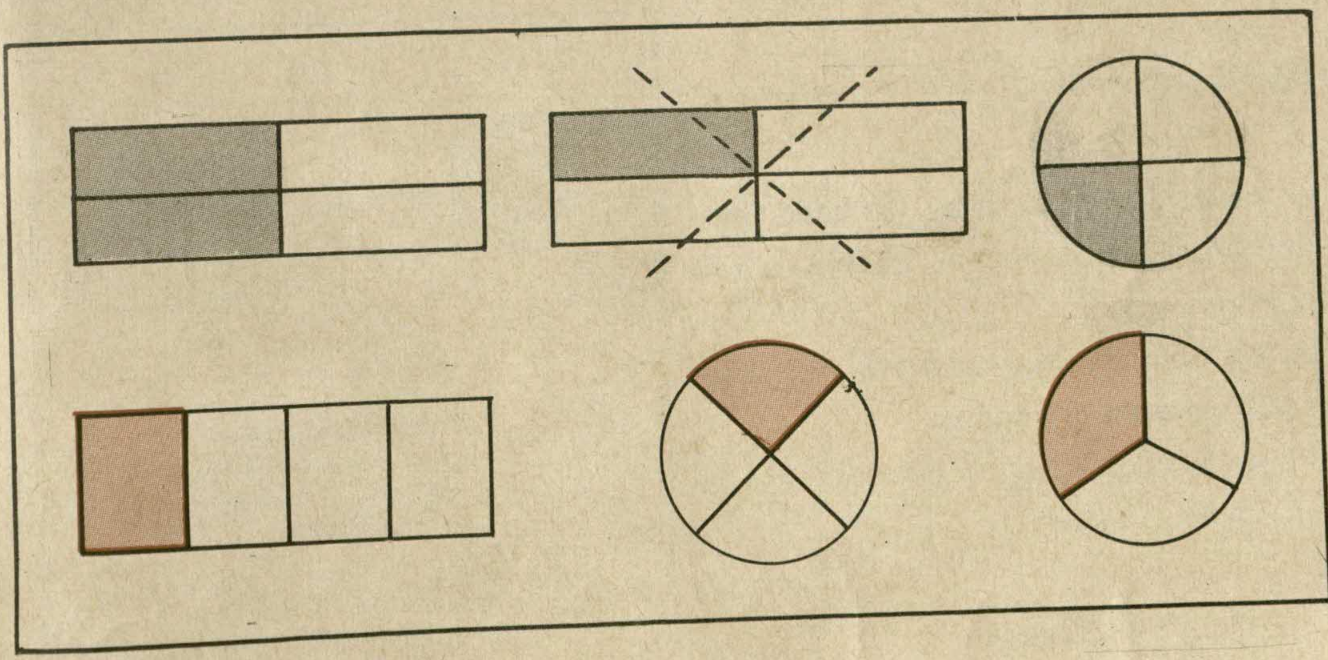
One fourth



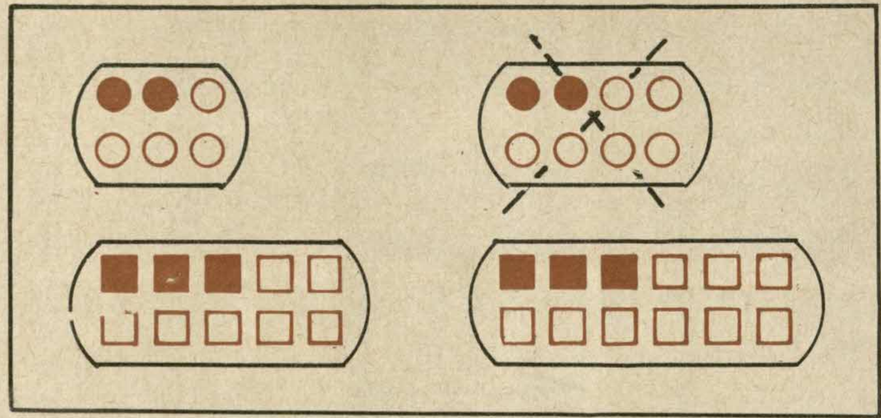
Take a piece of paper.
Fold it into two halves
which cover one another. Fold each half again into two parts. We have four parts of the paper, such that they cover one another.
The shaded portion is called one fourth of the piece of paper.

We write one fourth as $\frac{1}{4}$

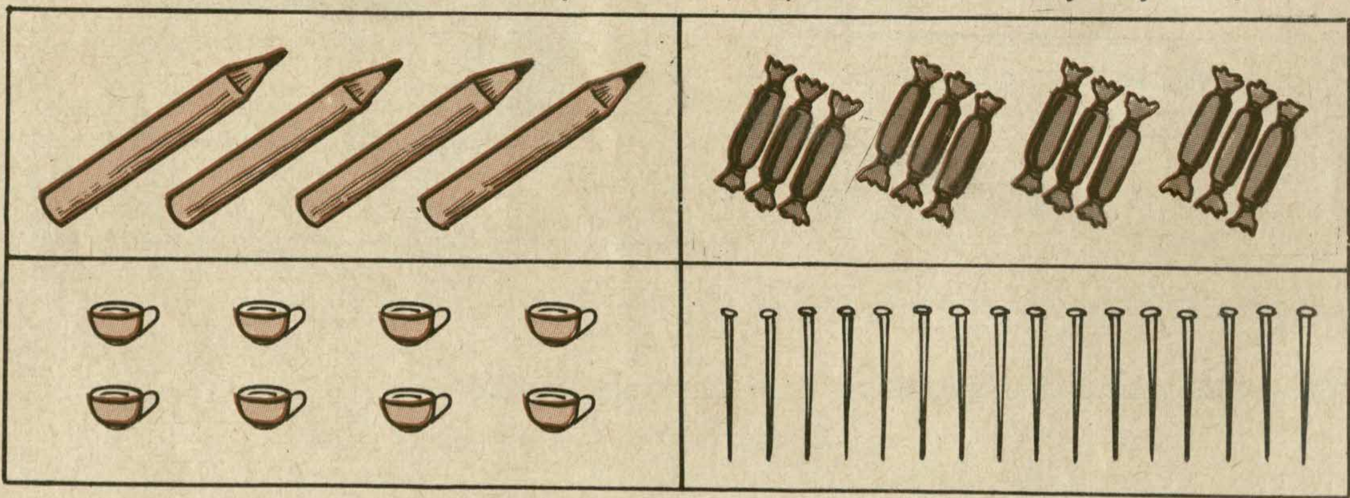
Cross the pictures which show one fourth as shaded .



Cross the pictures in which one fourth the number of members are coloured.



Ring one fourth the number of objects in each picture in as many ways as you can

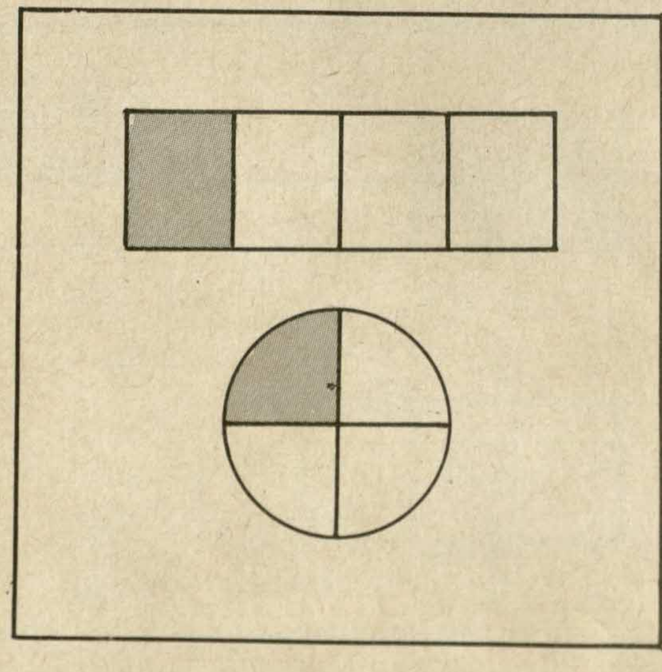


Three fourths

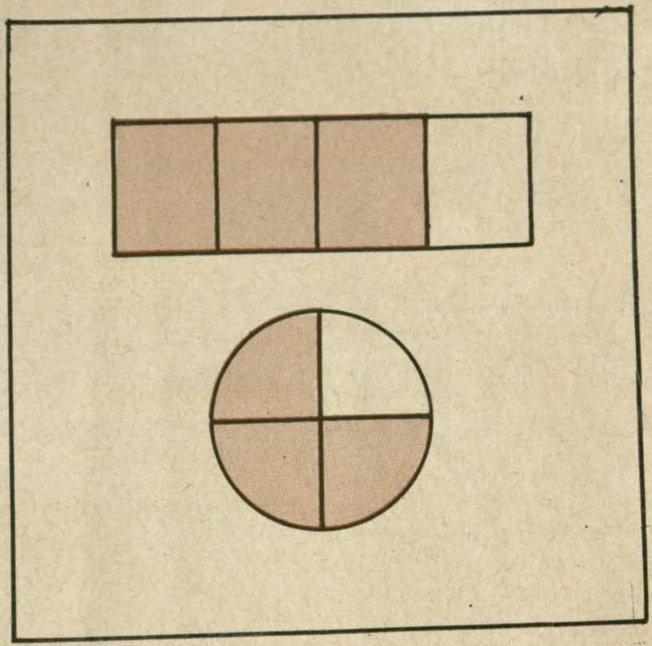
In the adjoining pictures, shaded portion shows one fourth of the whole picture.

In each picture, we have left out three such parts as unshaded.

Three fourths of each picture is unshaded.

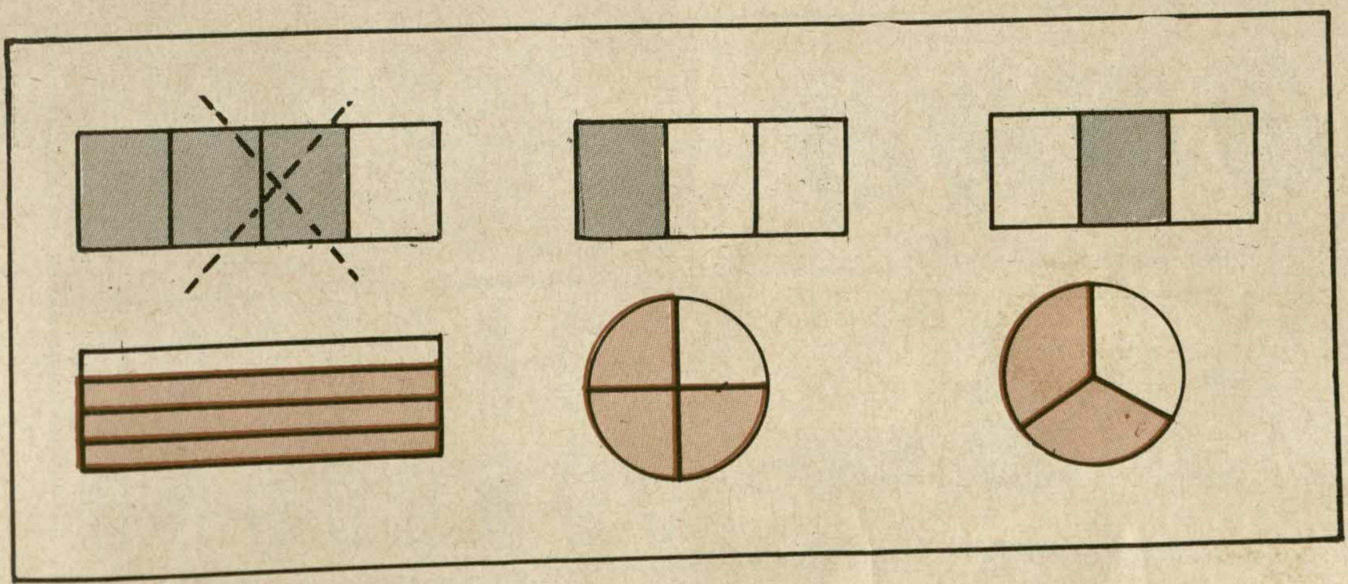


In these pictures three fourths of each one is shaded.

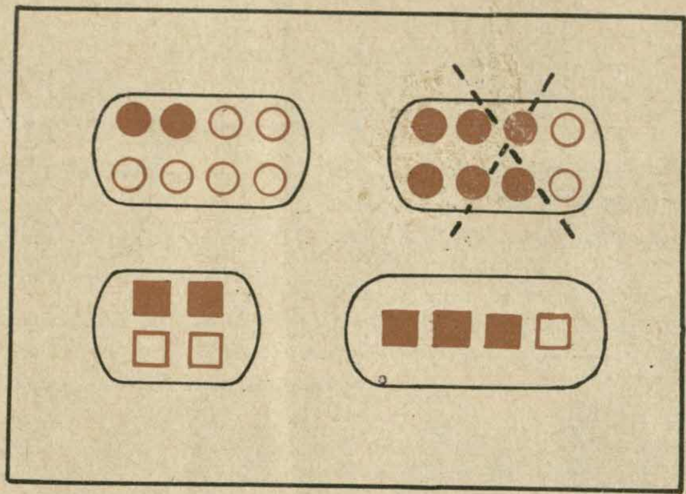


We write three fourths as $\frac{3}{4}$

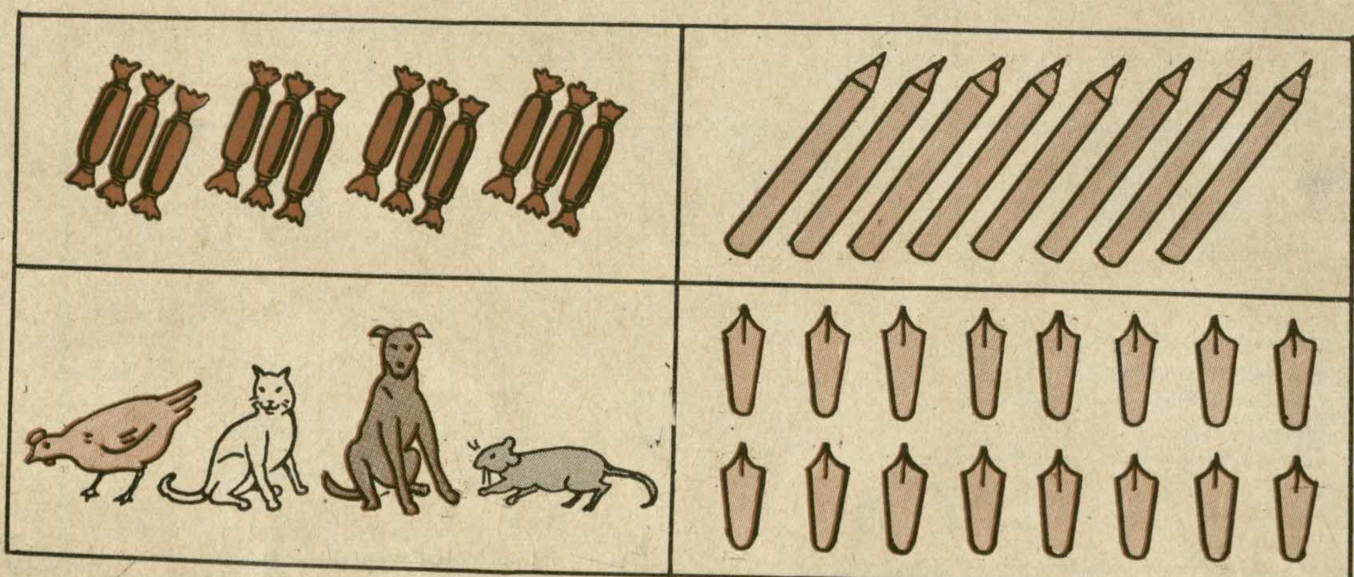
Cross the pictures which show three fourths as shaded .



Cross the pictures in which three fourths the number of members are coloured.

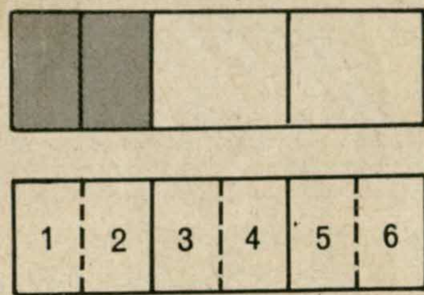


Ring three fourths the number of objects in each picture in as many ways as you can.



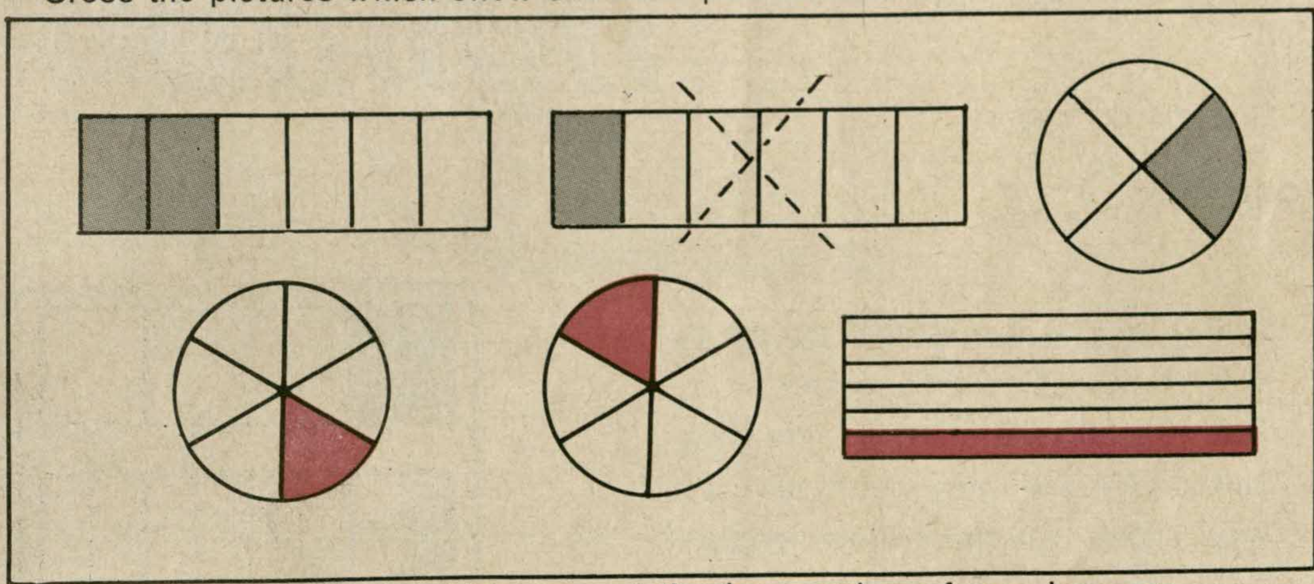
One sixth

In this picture, the shaded portion is one third of the whole picture. Fold this shaded portion into two halves. Also fold each unshaded part into two halves. How many parts do you get ? Each part is exactly alike. Each part is one sixth of the whole picture.

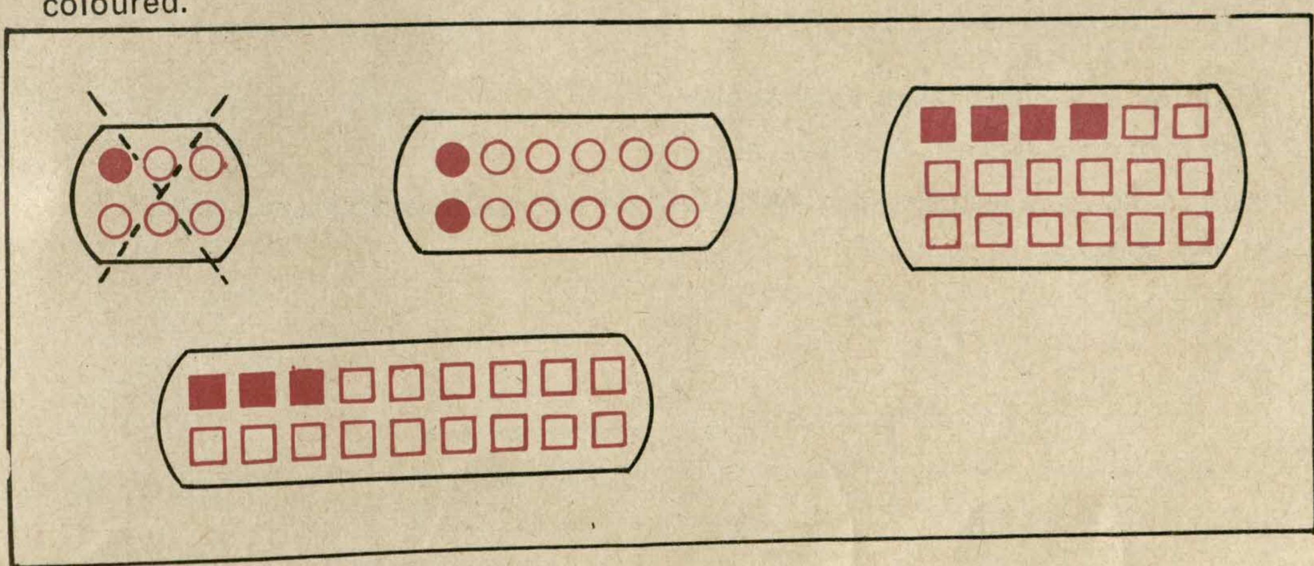


We write one sixth as $\frac{1}{6}$

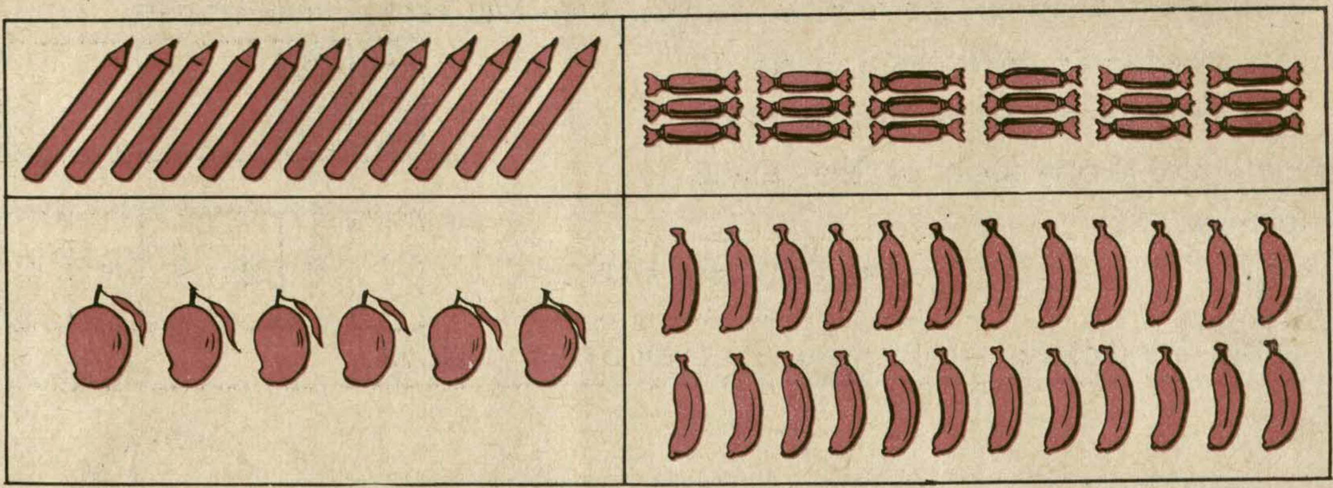
Cross the pictures which show one sixth part as shaded .



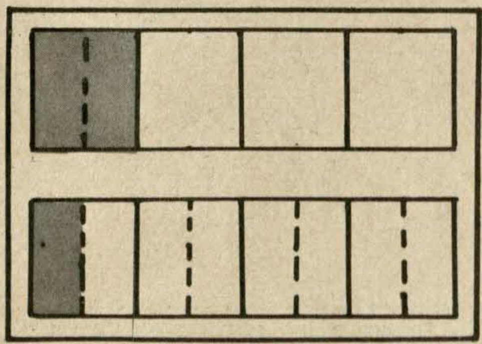
Cross the pictures in which one sixth the number of members are coloured.



Ring one sixth the number of objects in each picture in as many ways as you can.



One eighth

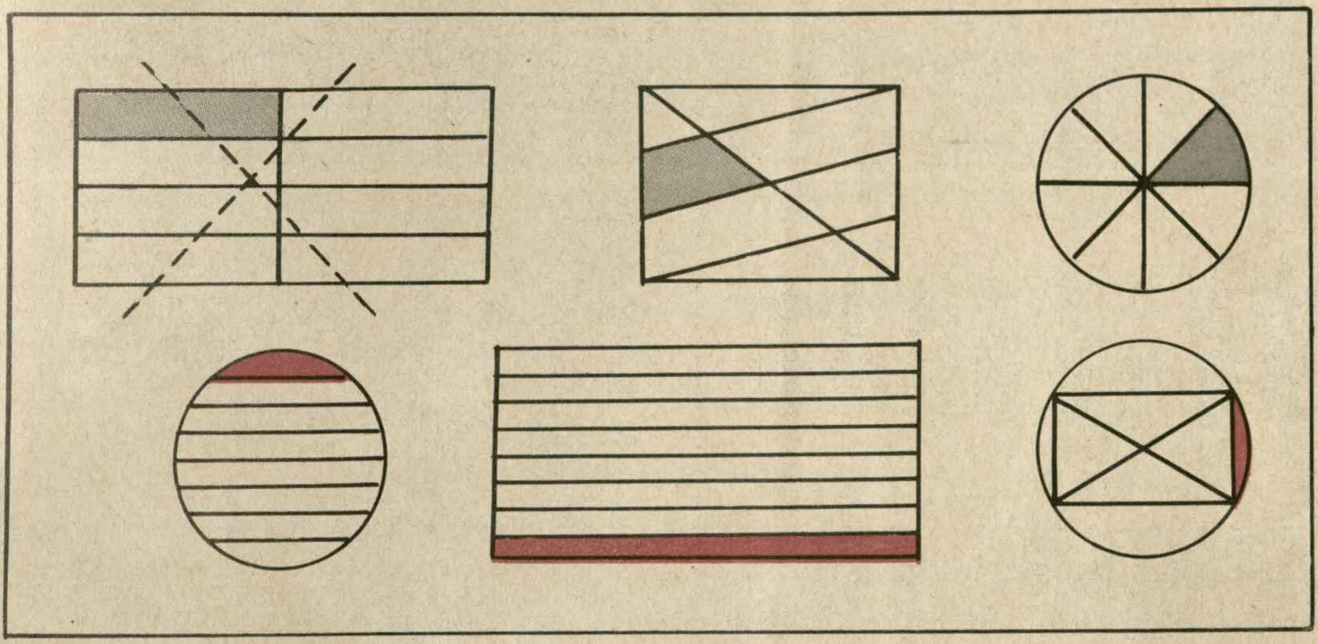


In this picture, the shaded portion is one fourth of the whole picture.
Fold the shaded portion into two halves. We call each such part as one eighth of the whole picture (why ?)

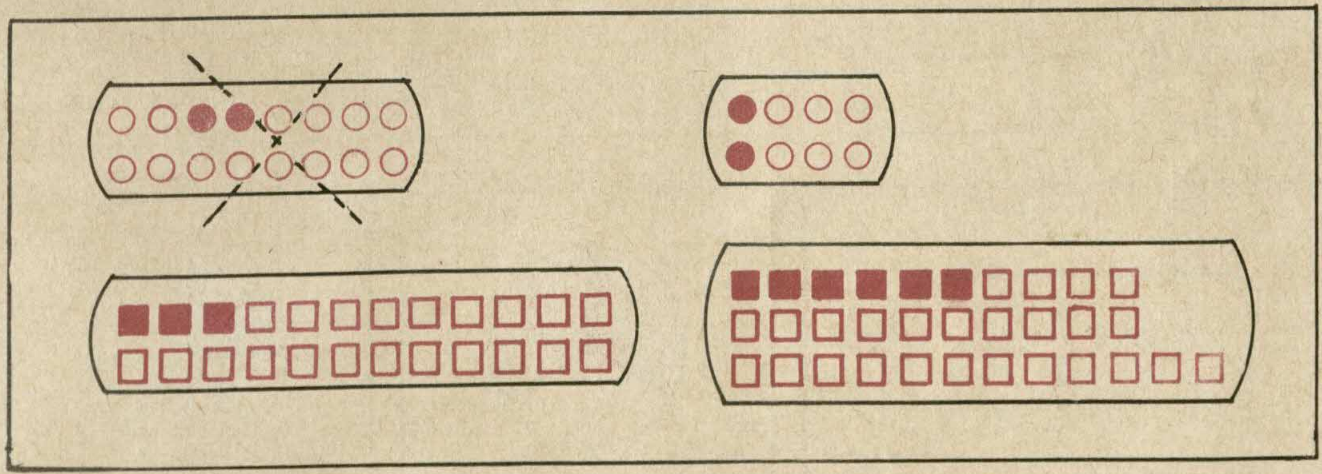
Because, if we fold each one fourth part into two halves, we get eight parts which are exactly alike. We therefore call each part as one eighth of the picture.

We write one-eighth as $\frac{1}{8}$

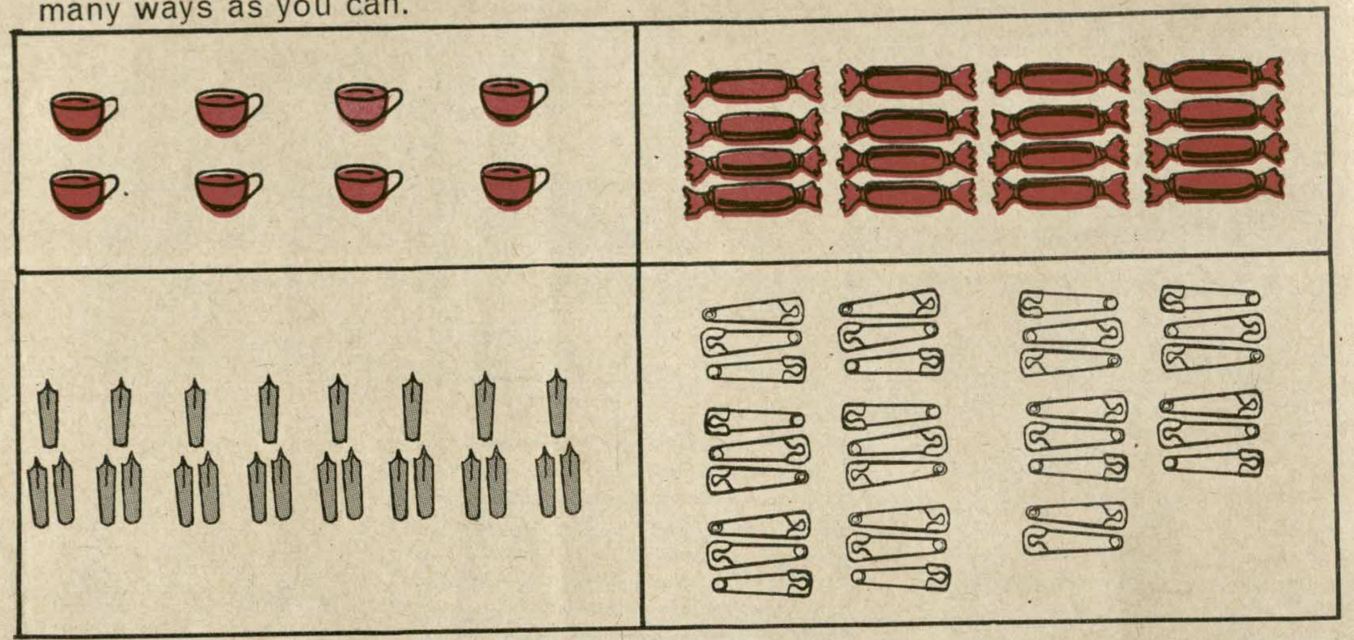
Cross the pictures which show one eighth part as shaded



Cross the pictures in which one-eighth the number of members are coloured,

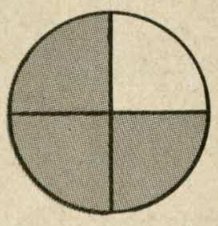


Ring one-eighth the number of objects in the following pictures in as many ways as you can.

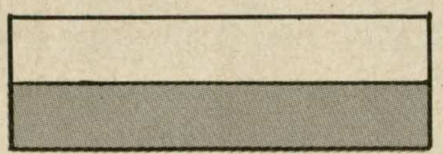


Choose the correct fraction :

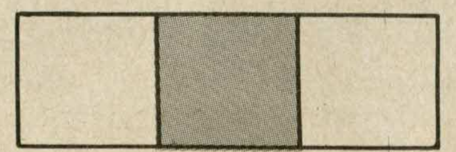
Ring the fraction which correctly shows the shaded part in each picture.



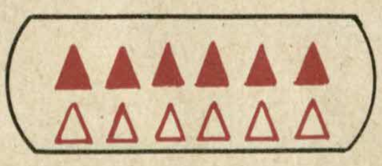
$\frac{1}{6}$, $\frac{1}{2}$, $\frac{3}{4}$, $\frac{1}{8}$



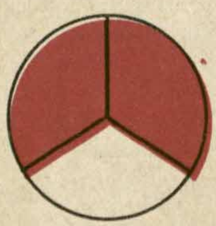
$\frac{1}{4}$, $\frac{1}{6}$, $\frac{2}{3}$, $\frac{1}{2}$



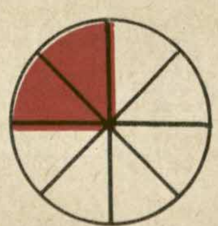
$\frac{1}{8}$, $\frac{1}{3}$, $\frac{3}{4}$, $\frac{1}{2}$



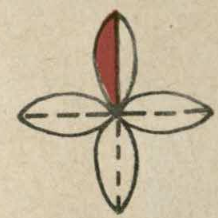
$\frac{1}{2}$, $\frac{1}{4}$, $\frac{3}{4}$, $\frac{2}{3}$



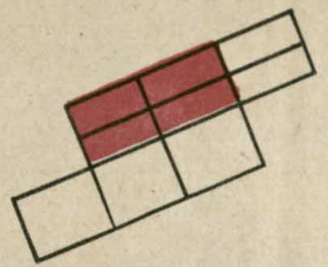
$\frac{1}{3}$, $\frac{2}{3}$, $\frac{1}{2}$, $\frac{1}{6}$



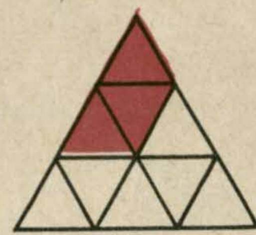
$\frac{1}{8}$, $\frac{1}{3}$, $\frac{1}{4}$, $\frac{1}{6}$



$\frac{1}{3}$, $\frac{1}{4}$, $\frac{1}{6}$, $\frac{1}{8}$



$\frac{1}{3}$, $\frac{1}{6}$, $\frac{2}{3}$, $\frac{3}{4}$



$\frac{1}{2}$, $\frac{1}{3}$, $\frac{2}{3}$, $\frac{3}{4}$

Shade the desired part :

One-half of

One-third of

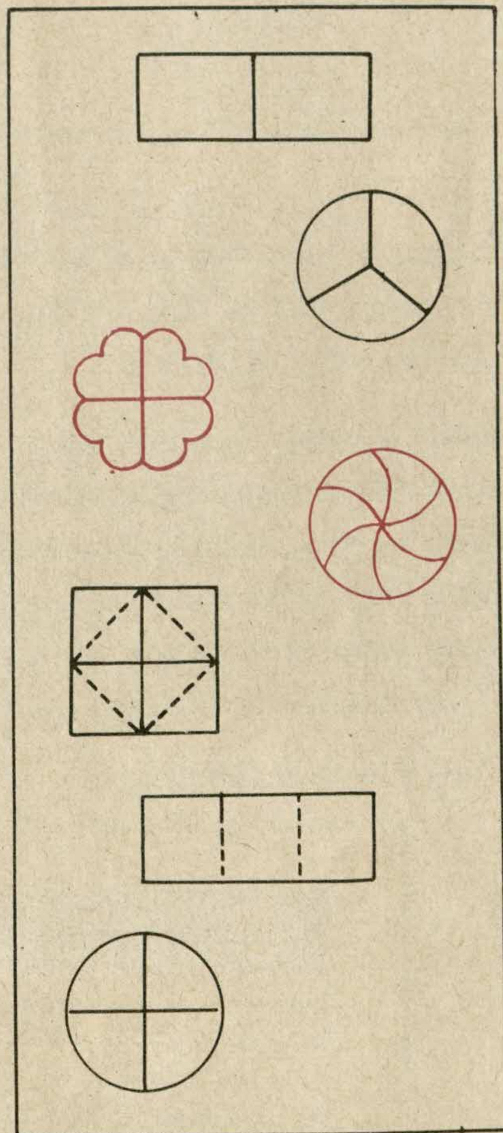
One fourth of

One sixth of

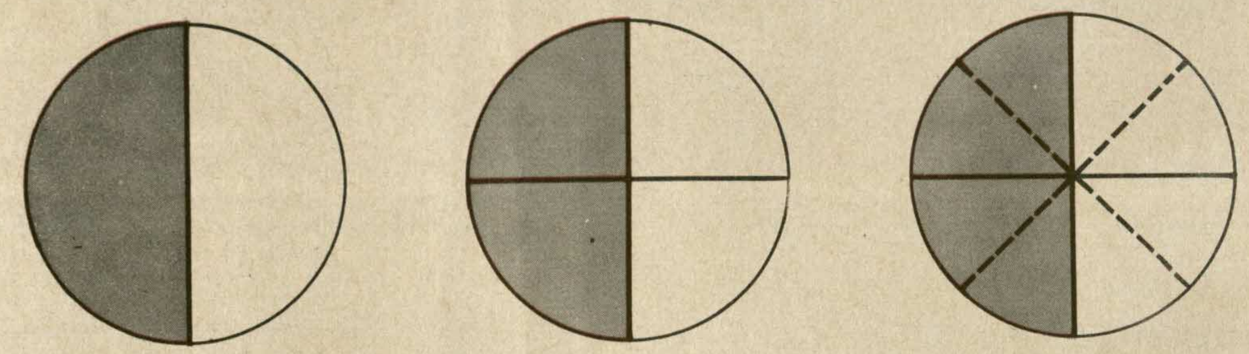
One-eighth of

Two thirds of

Three fourths of



Relationship between fractions :



One half two fourths Four eighths

Observe the above three pictures. You will notice that : One half shades the same part as two fourths or four eighths. Therefore $\frac{1}{2}$ is the same as $\frac{2}{4}$ and also the same as $\frac{4}{8}$.

$$\frac{1}{2} = \frac{2}{4} = \frac{4}{8}$$

Make pictures to show that

One half is the same as three sixths.

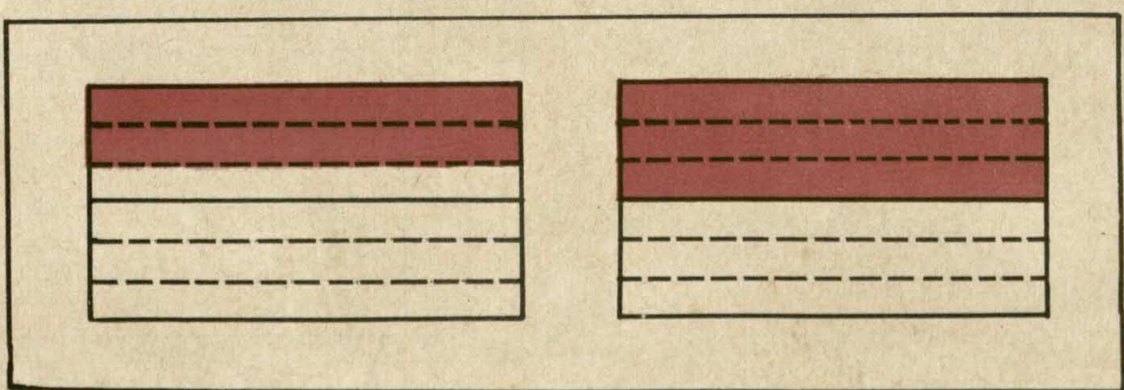
One fourth is the same as two eighths.

One third is the same as two sixths.

Two thirds is the same as four sixths.

Three fourths is the same as six eighths.

Find which is greater :



One half is the same as three sixths.

One third is the same as two sixths.

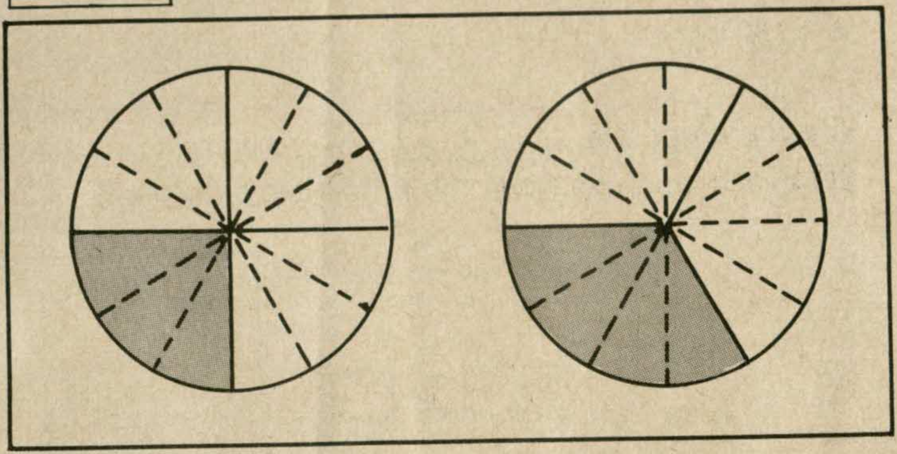
Three sixths is greater than two sixths.

Hence one half is greater than one third.

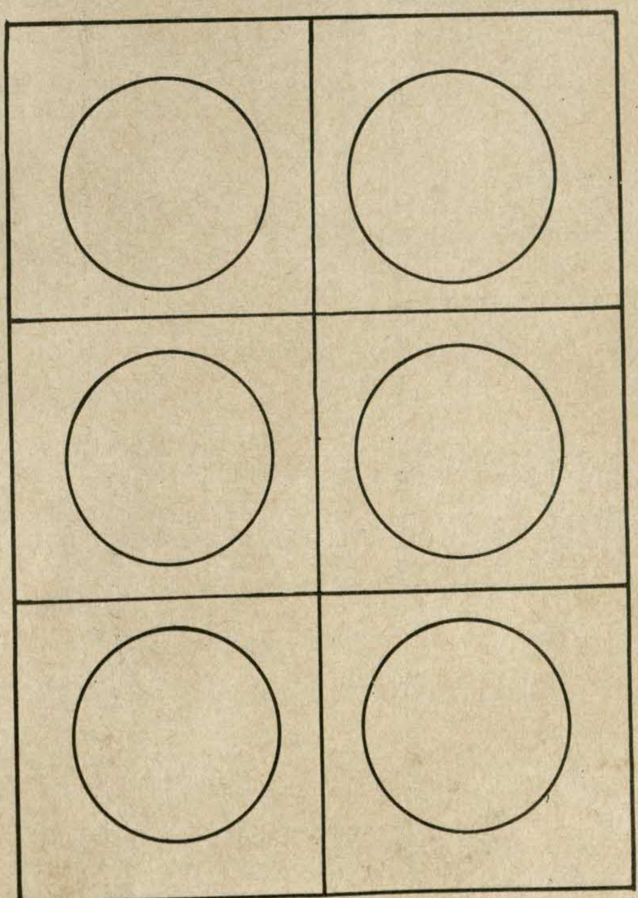
We write this as : $\frac{1}{2} > \frac{1}{3}$

Which is greater

$\frac{1}{4}$ or $\frac{1}{3}$



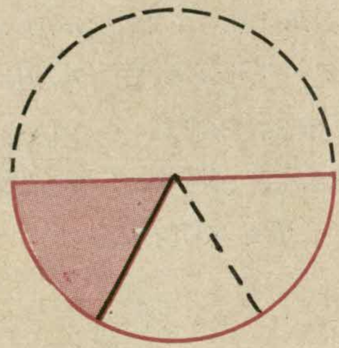
Complete the pictures given here to show which is greater ?



$\frac{1}{4}$ or $\frac{1}{6}$

$\frac{1}{2}$ or $\frac{2}{3}$

$\frac{2}{3}$ or $\frac{3}{4}$

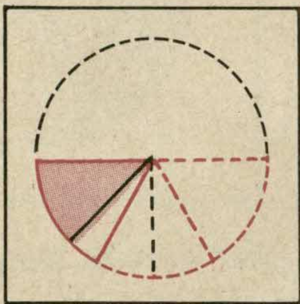


In the picture given here, 
shows one half, and 
shows one sixth.
In the picture 
is a part of 

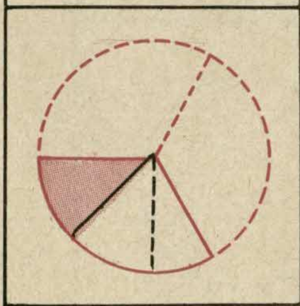
We therefore say : $\frac{1}{2} > \frac{1}{6}$

What can you say from the adjoining pictures ?

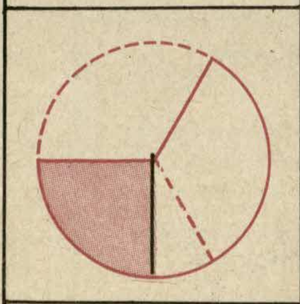
□ > □



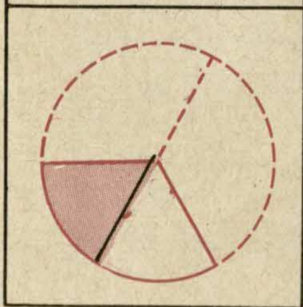
□ > □



□ > □



□ > □



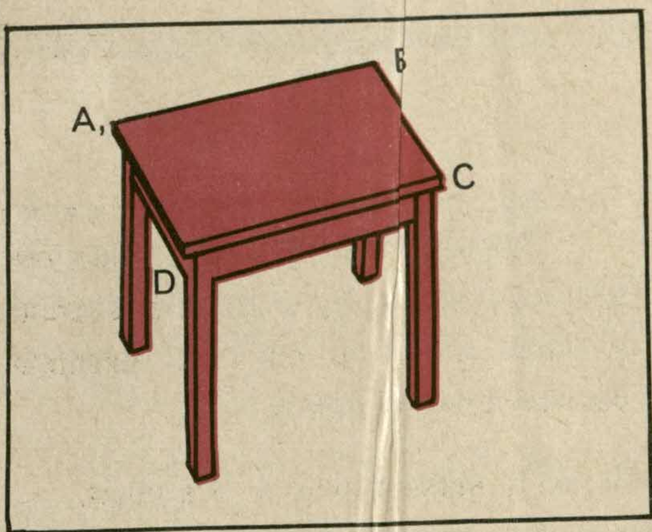
GEOMETRY

Points and sets of points

Points—

Observe your teacher's table. How many edges does it have ? Four. Where do two adjacent edges meet ? They meet in corners.

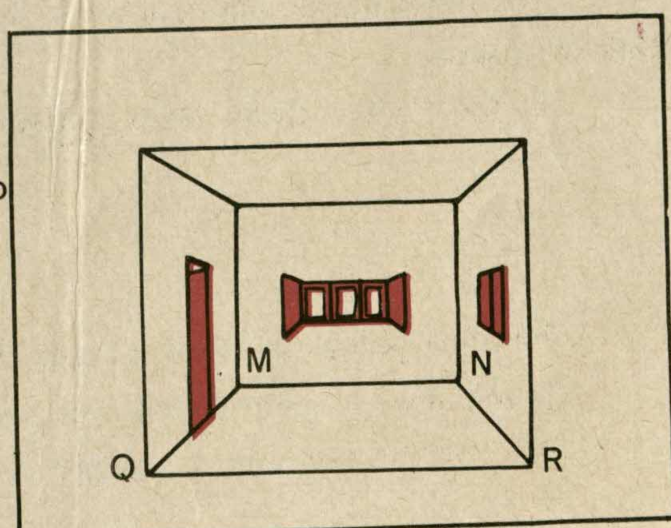
We have named the corners as A, B, C, D.



Observe the floor of your room. Do any two adjacent sides meet ?

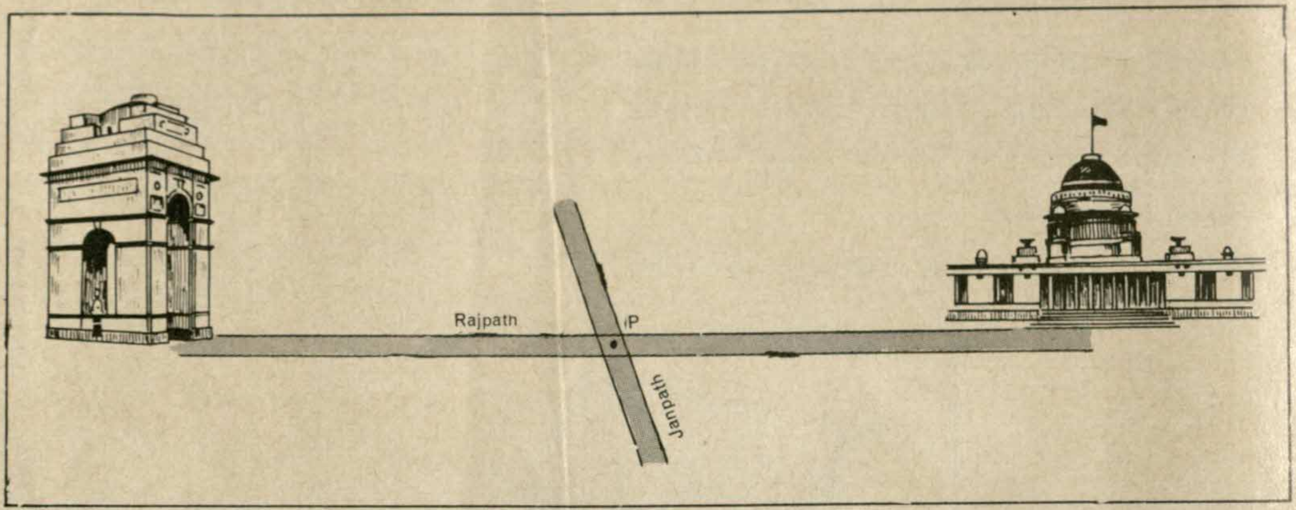
Yes, they meet in a corner.

There are four corners M, N, R, Q.



Two acacent edges of this page of the book neet in a corner.

In New Delhi, Rajpath and Janpath cross each other at P.



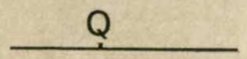
The corners A, B, C, D of the first example, M, N, R, Q of the second example and P of the third example are examples of points.

We use a small dot to make a picture of a point.

A capital letter is used to name a point. •P

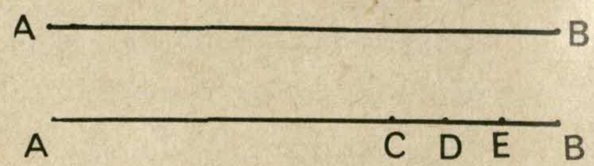
This is a picture of the point P.

The name of the point shown in the picture is......



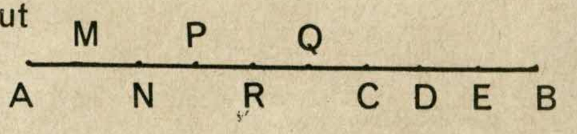
Sets of points

In the picture given here, put three points between A and B



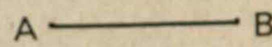
Put five points between A and C.

If you have a sharp pencil, can you put more points between A and M?

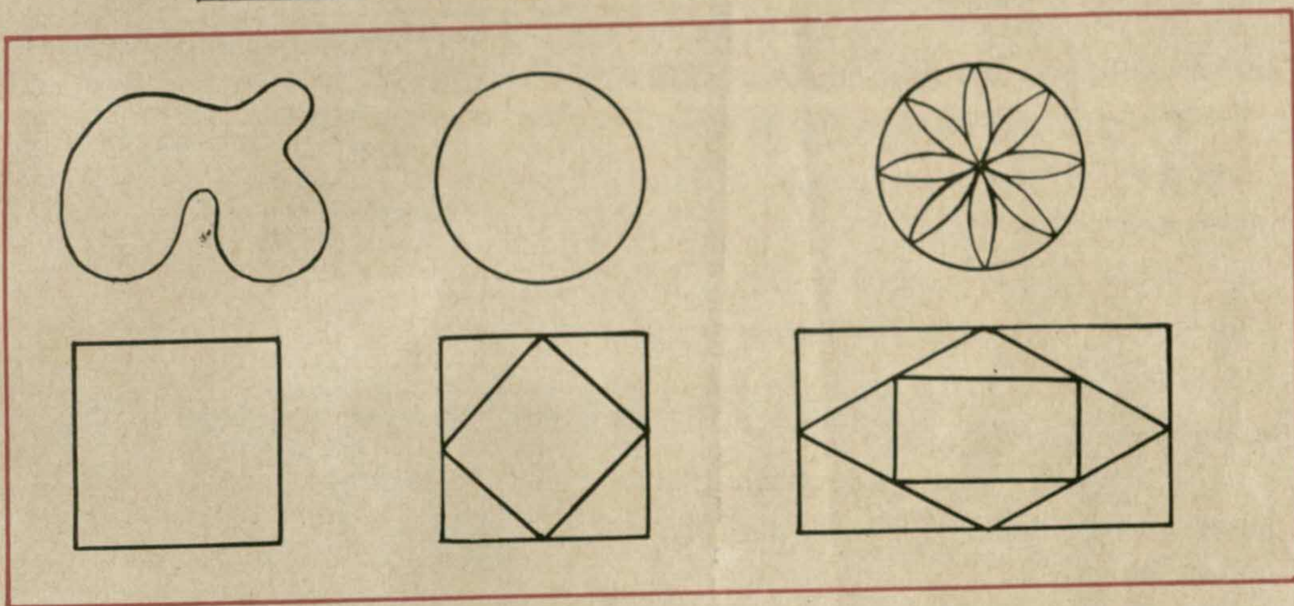


How many points are there between A and B ?

Really speaking, the picture shown here is a collection of points or a set of points.



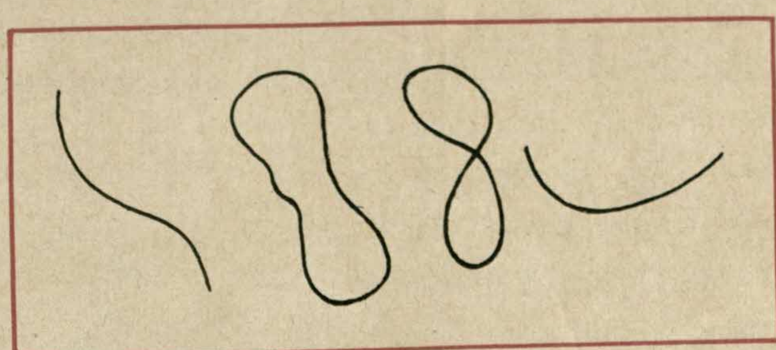
Any figure that we study in geometry is a set of points.

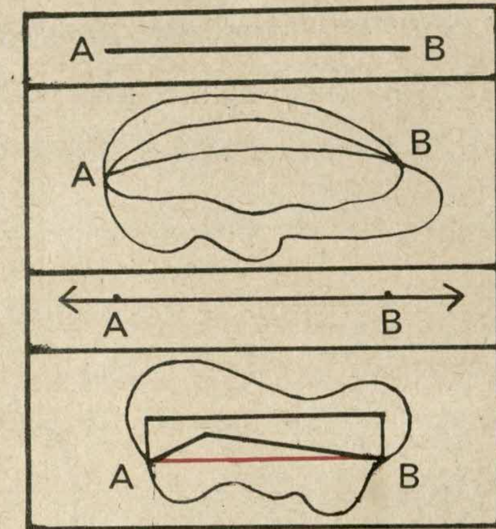


All these figures are geometric figures.

All of them are sets of points.

We also have special names for some figures. Here are a few. These figures are called curves.





A——B is called a part of a line or a line-segment.

These are all examples of curves from A to B.

A line is a special type of curve that does not bend.

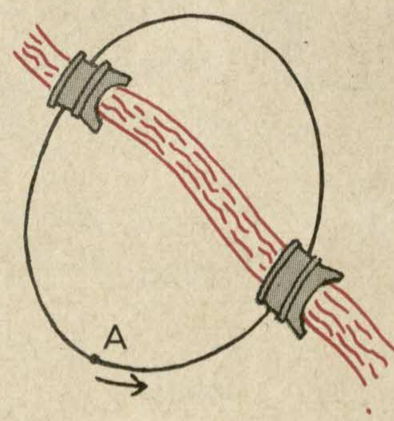
In this picture, your house is at A and your friend's house is at B.

You can go from A to B along a number of paths as shown in the picture.

Which do you think is the shòrtest ? The line-segment shown in red colour is the shortest.

A line-segment from A to B is the shortest path from A to B

Closed and open curves



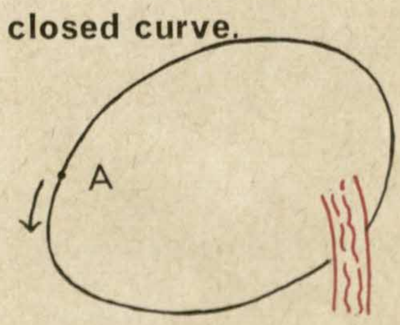
Ram and Mohan are playing a game. They have made a path as shown here.

Ram starts walking from A along the path in the direction shown in the figure. **The rule of the game is that you can not walk back.**

Will Ram be able to come to the starting point A without walking back (i. e. without retracing) ?

Yes, Ram will be able to come to A.

A path on which we can arrive at the starting point again without retracing (i. e. without walking back) is an example of a **closed curve.**

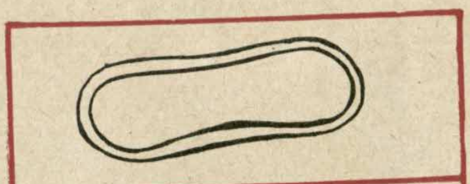


Now suppose that the river has washed away the bridge, so that the path looks as shown here. It is now Mohan's turn to walk from A in the direction shown here.

Can Mohan arrive at A again without retracing his steps (i.e. without walking back) ? No. He can't.

A path on which we cannot arrive at the starting point again without retracing is an example of an **open curve**.

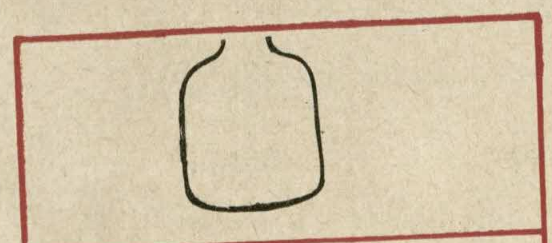
If the following are examples of a closed curve, draw a ring around the word "closed." If it is an example of an open curve, draw a ring around "open"



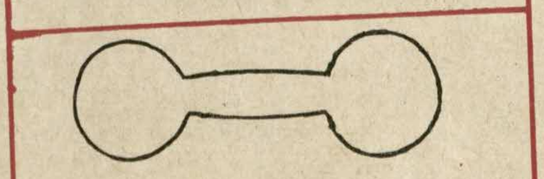
Closed Open



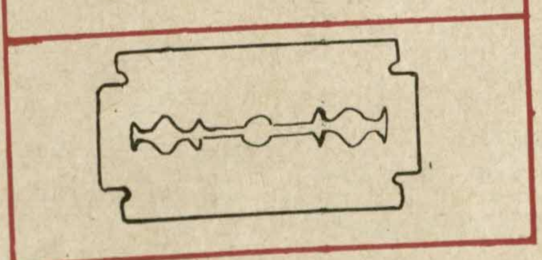
Closed Open



Closed Open

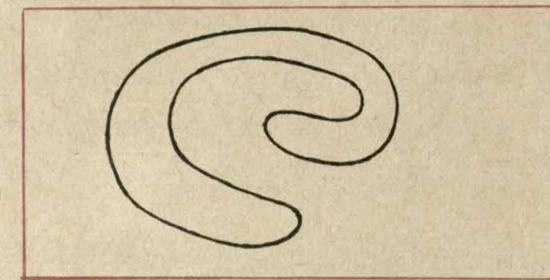


Closed Open

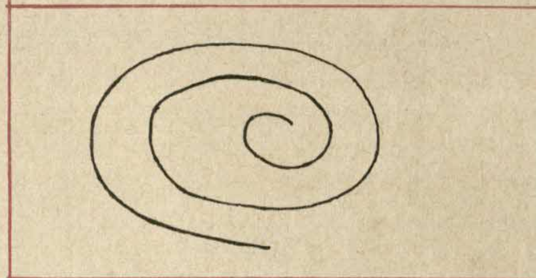


Closed Open

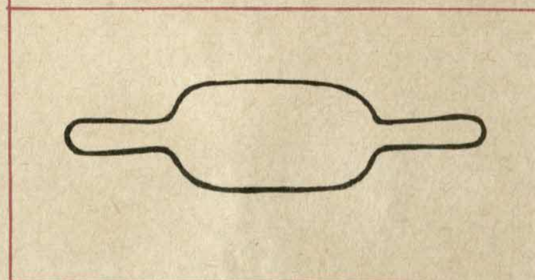
Closed Open



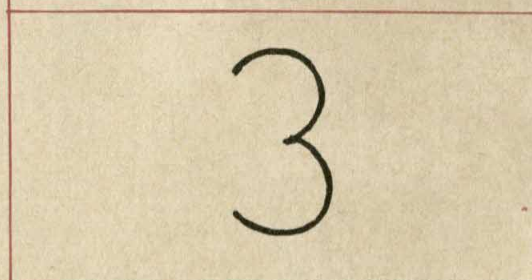
Closed Open

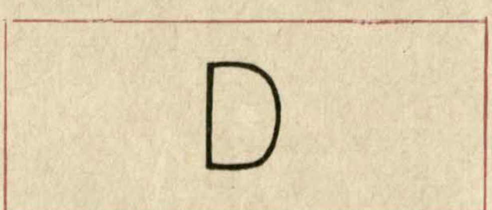


Closed Open

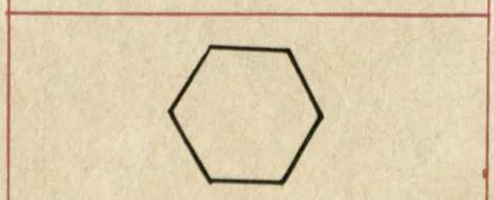


Closed Open

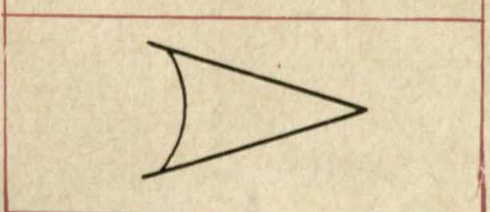




Closed Open



Closed Open



Closed Open

Inside and outside of a closed curve

Curve is closed.

Dog is inside the curve.

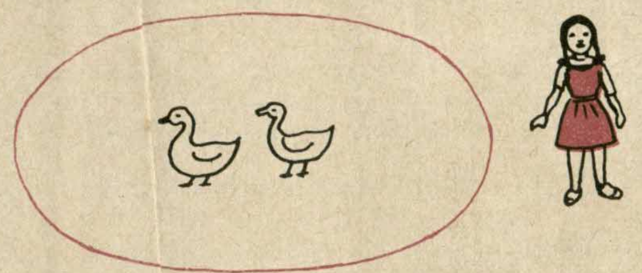
Lamp-post is outside the curve.

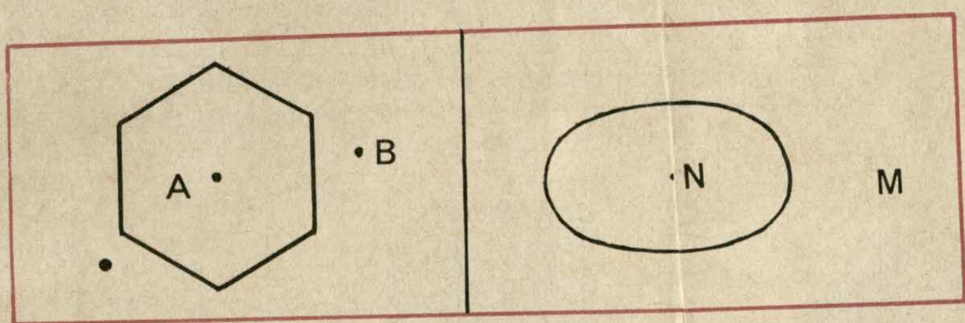


The curve is closed.

Ducks are inside/outside.

Girl is inside/outside.



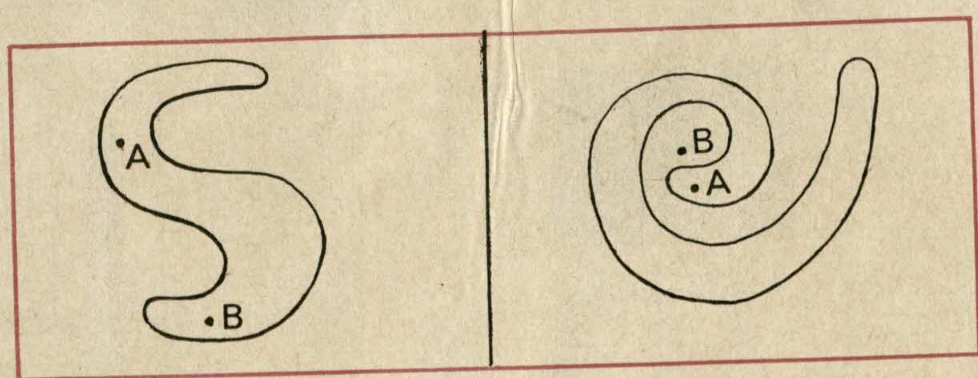


Point A is inside/outside

Point B is inside/outside

Point M is inside/outside

Point N is inside/outside.

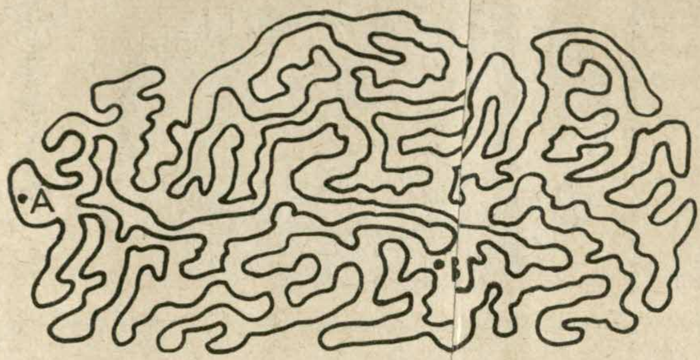


Point A is inside/outside

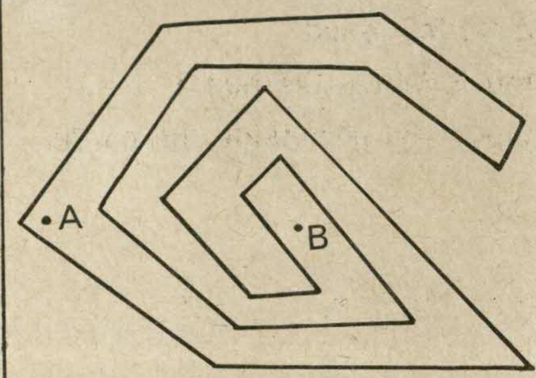
Point B is inside/outside

Point A is inside/outside

Point B is inside/outside.



Point A is inside/outside
Point B is inside/outside

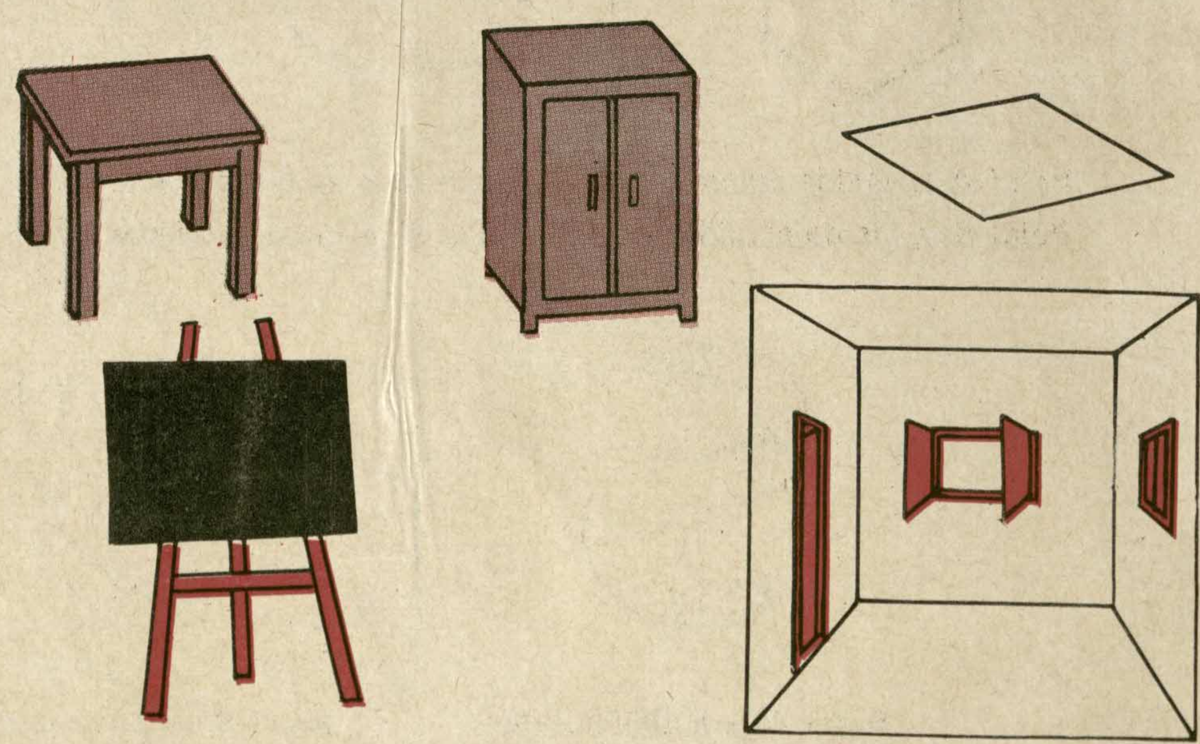


Point A is inside/outside
Point B is inside/outside.

Plane

Here are some pictures. They give you an idea of flat surfaces.

Any flat surface is a part of a plane.



Suppose you have to build a stage for Ramlila celebrations during Dussehra.

You collect a number of tables of same height and put them contiguously.

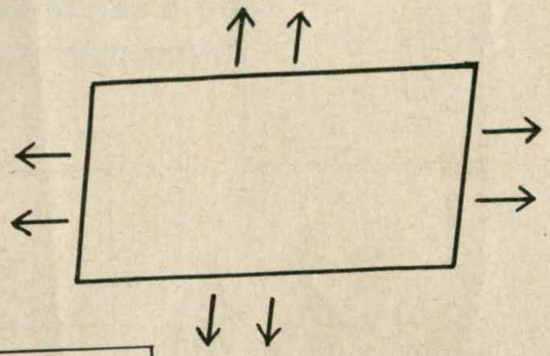
What happens by putting tables in this manner ?

The flat surface given by table-tops has increased.

If you are given as many tables, as you may like, how large a flat surface can you build ?

We can extend a flat surface in all directions to any length, we desire.

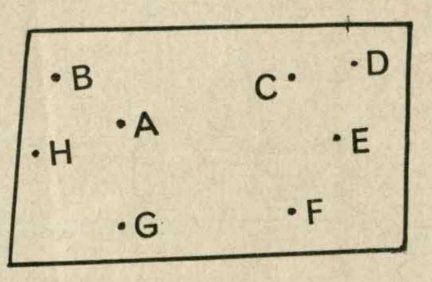
We may say the same thing as :



A plane extends without any limit in all directions.

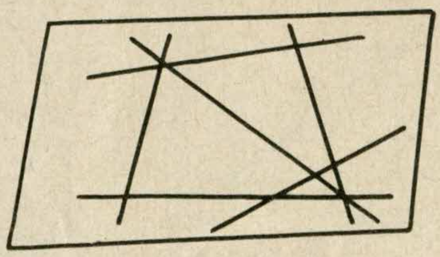
Plane figures

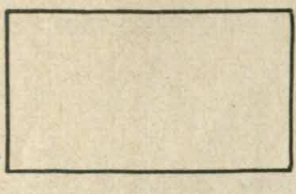
A, B, C, D, E, F are points in the given plane. We say that each point lies on the plane. Actually there are countless points on a plane.



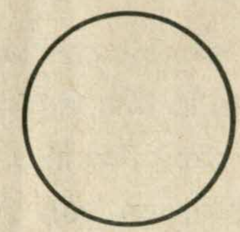
Similarly we can show a number of lines lying on the plane.

We may also have other geometric figures on a plane.

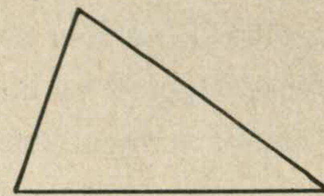




Rectangle



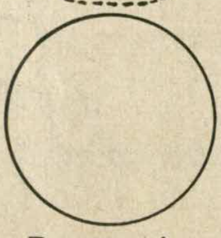
Circle



Triangle

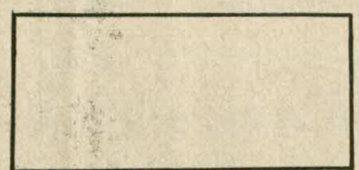
Draw a ring round the word which is correct :

Circle



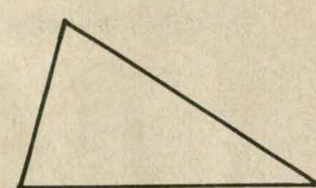
Rectangle

Circle



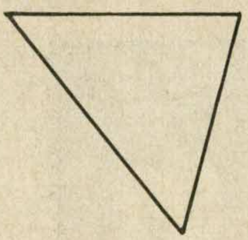
Rectangle

Circle



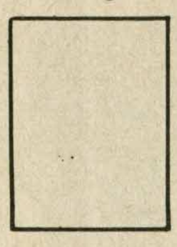
triangle

Rectangle



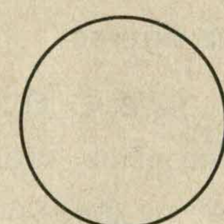
triangle

Rectangle



triangle

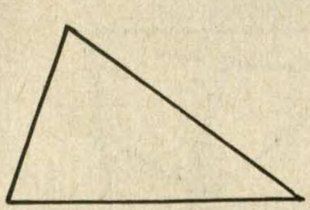
triangle



circle

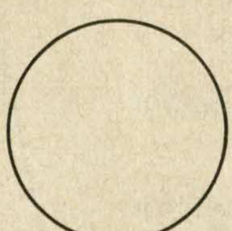
Write the name of each :

1

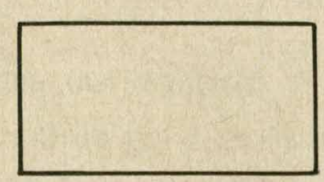


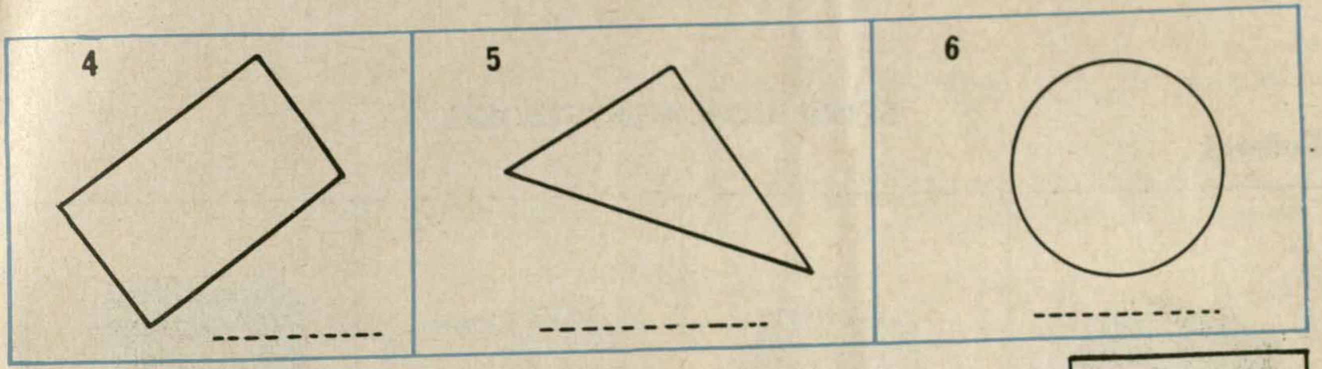
triangle

2

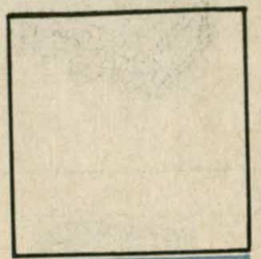


3

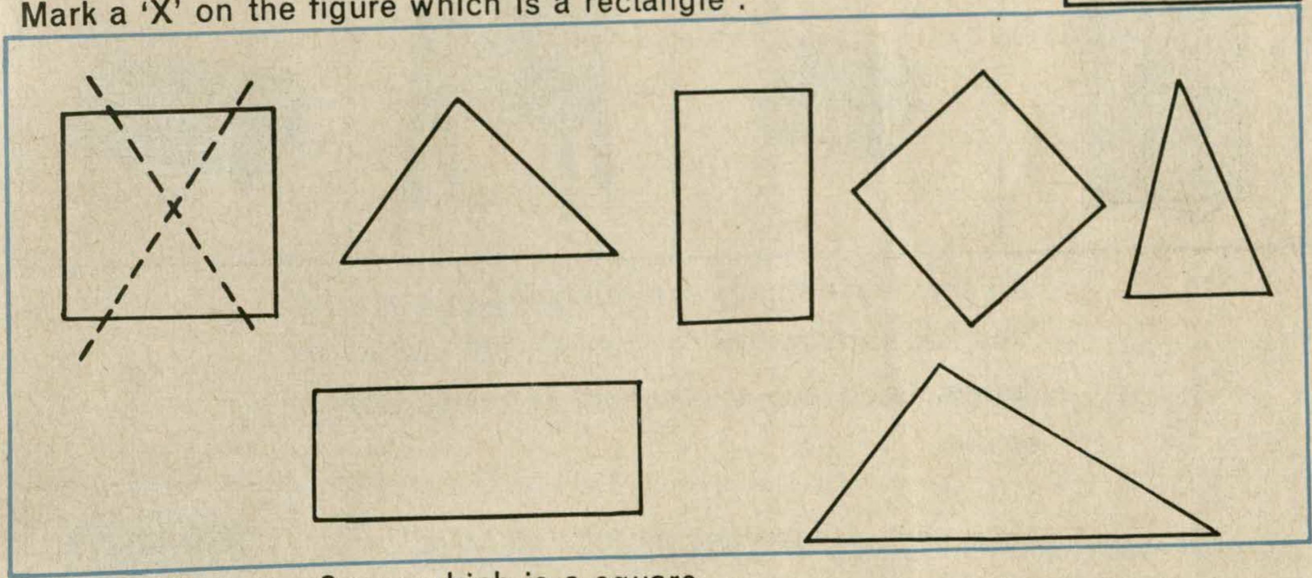




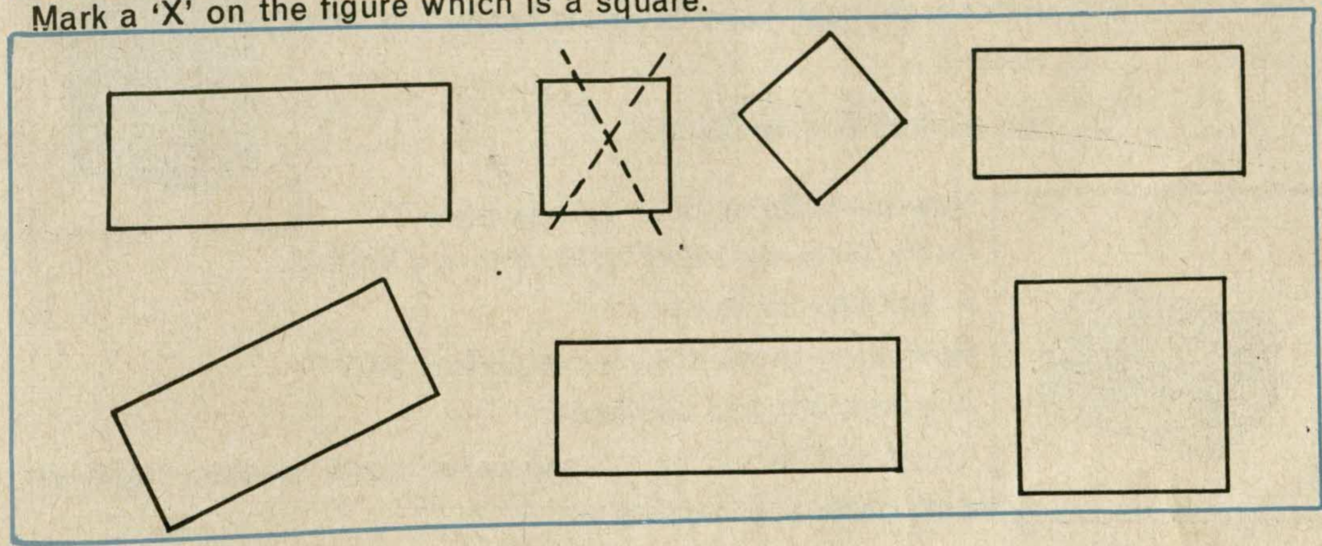
This is a square.
It is also a rectangle.
All squares are rectangles.



Mark a 'X' on the figure which is a rectangle .

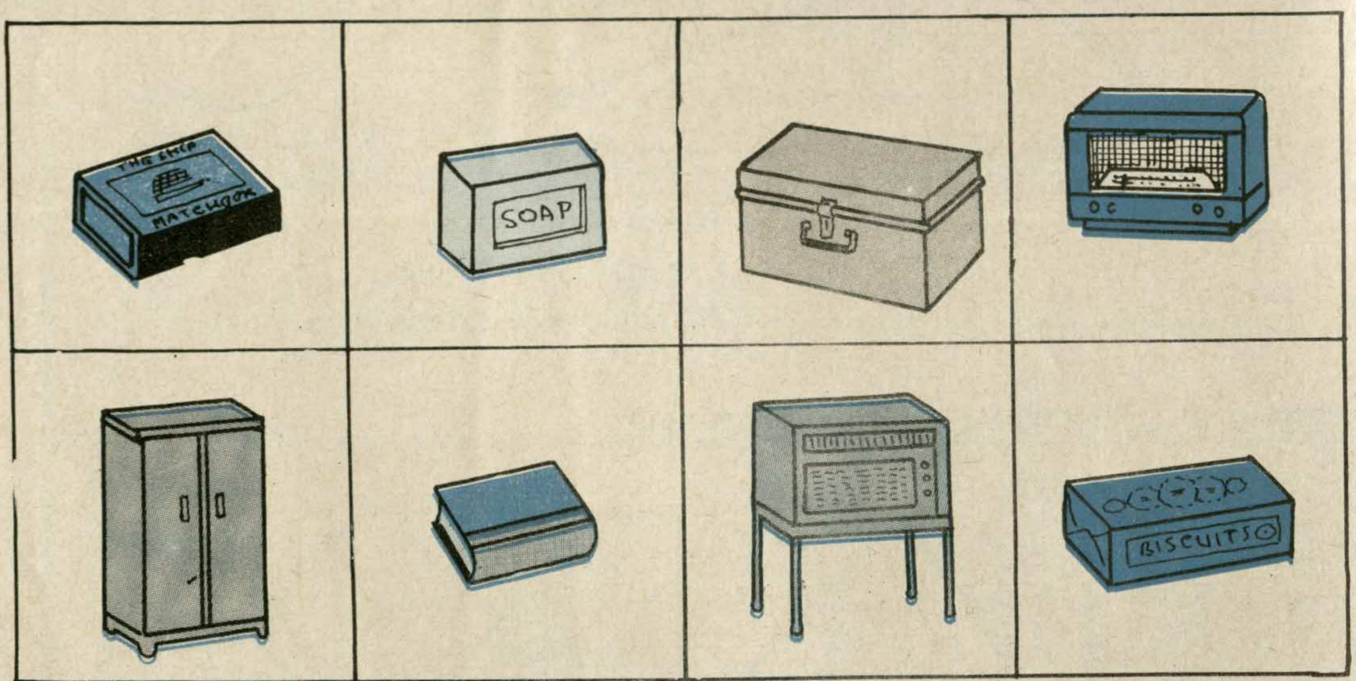


Mark a 'X' on the figure which is a square.

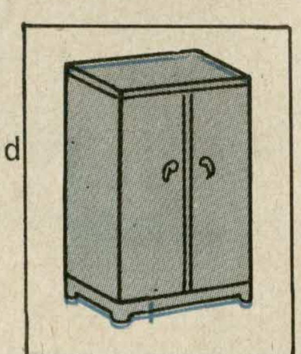


SOME COMMON SOLIDS

Cuboid



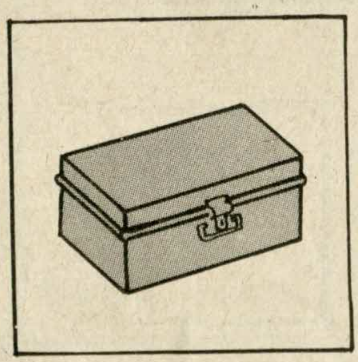
All the above things are examples of a cuboid. The flat surfaces of a cuboid are called its **faces.** Each face of a cuboid is rectangular in shape.



How many faces does an almirah have?

Front face, back face, two side faces, top and bottom.

An almirah has six faces.



How many faces does an box have ?

Front, back, two side faces, top and bottom.

A box has six faces.

How many faces does a match-box have ?

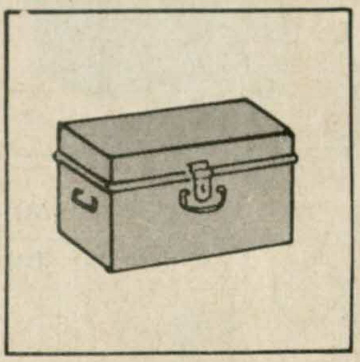
A match box has six faces.

Count the faces of a soap-cake, book, cooler, radio-set and packet of biscuits.

What do you notice each time ?

Look around and find out as many examples of a cuboid as you can. Count their faces. What do you notice ?

A cuboid has six faces



Two adjacent faces of a cuboid meet in an **edge.**

Count the number ot edges in a box.

Count the number of edges in the case of other cuboids.

What do you notice in each case ?

A cuboid has twelve edges

The point in which two edges meet is called a **vertex** of the cuboid.

The vertices in a box are named as A, B, C, D, E, F, G, H

They are eight in number.

Verify this for other cuboids.

We will always find that :

A cuboid has eight vertices.

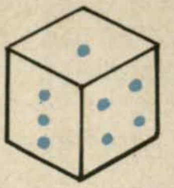
A cuboid is a solid which has six faces, twelve edges and eight vertices.

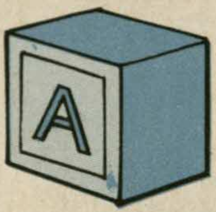
Look around and find out more examples of a cuboid. Count their faces, edges and vertices and put your result in the space given below.

Name of object	No. of faces	No. of edges	No. of vertices

Cube







All the above things are examples of a cube.

Count the number of faces, edges and vertices of a cube.

> Like a cuboid, a cube also has six faces, twelve edges and eight vertices.

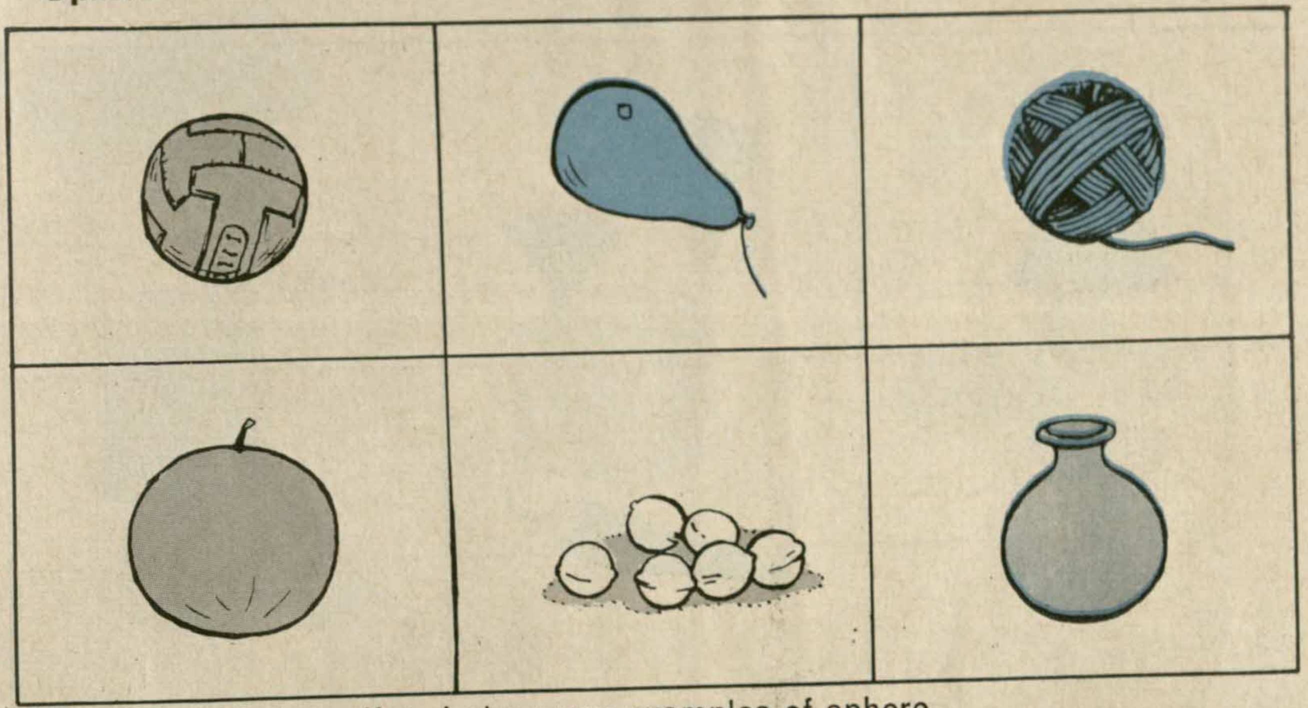
Each face of a cube is square in shape.

A cube is a special kind of a cuboid.

Go to a grocery shop and find out which things are sold in containers of the shape of cuboid/cube.

SOLIDS WITH CURVED SURFACES

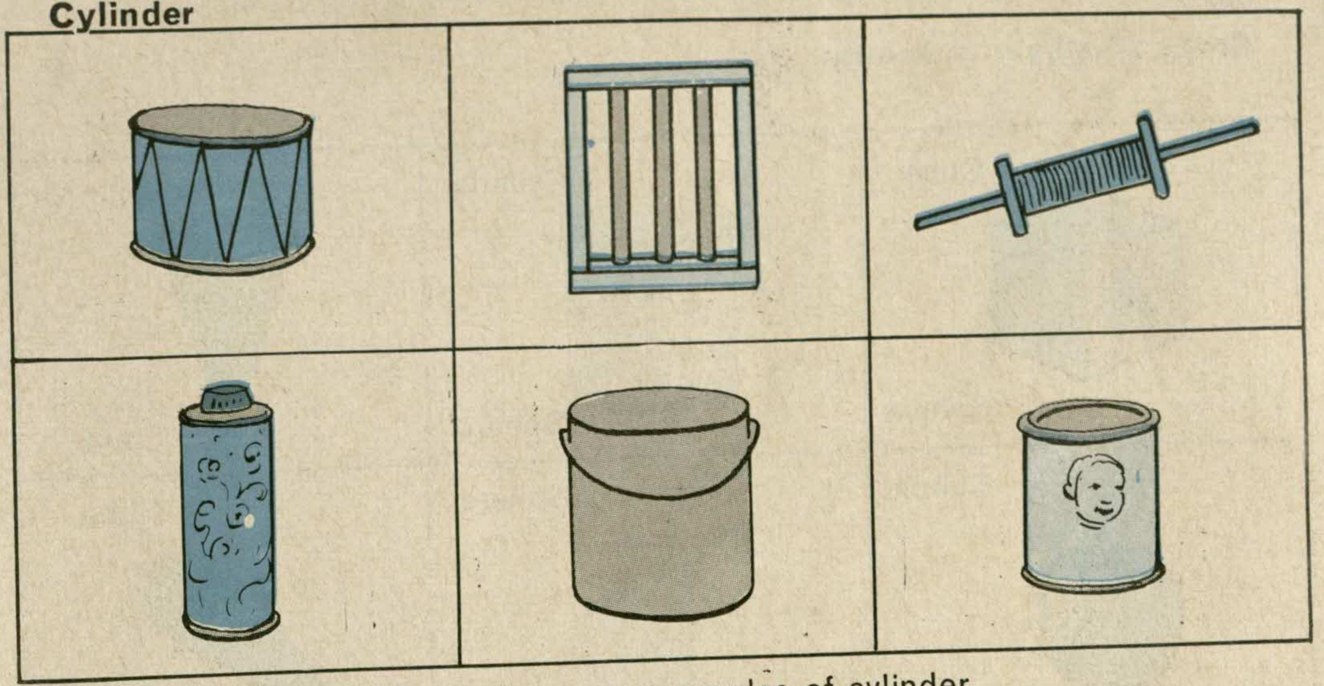
Sphere



Look around yourself and give more examples of sphere.

Go to a vegetable shop and find out vegetables with spherical shape.

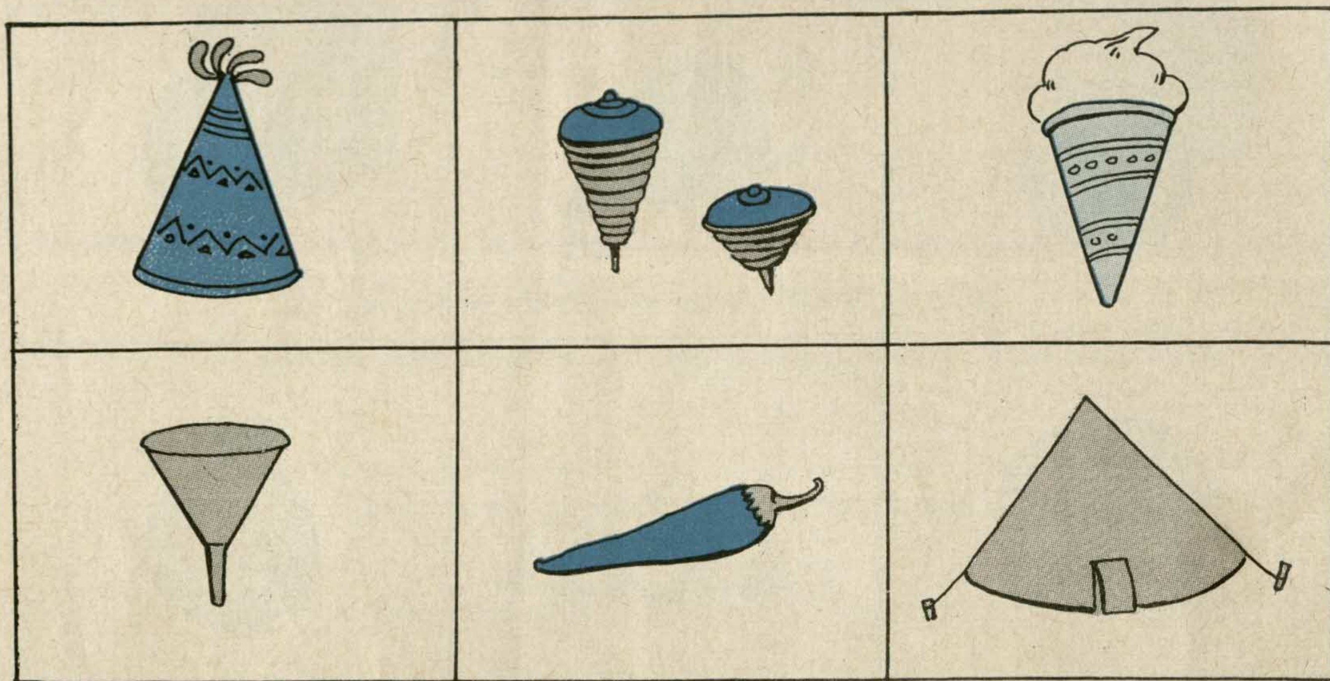
Cylinder



Look around yourself and give more examples of cylinder.

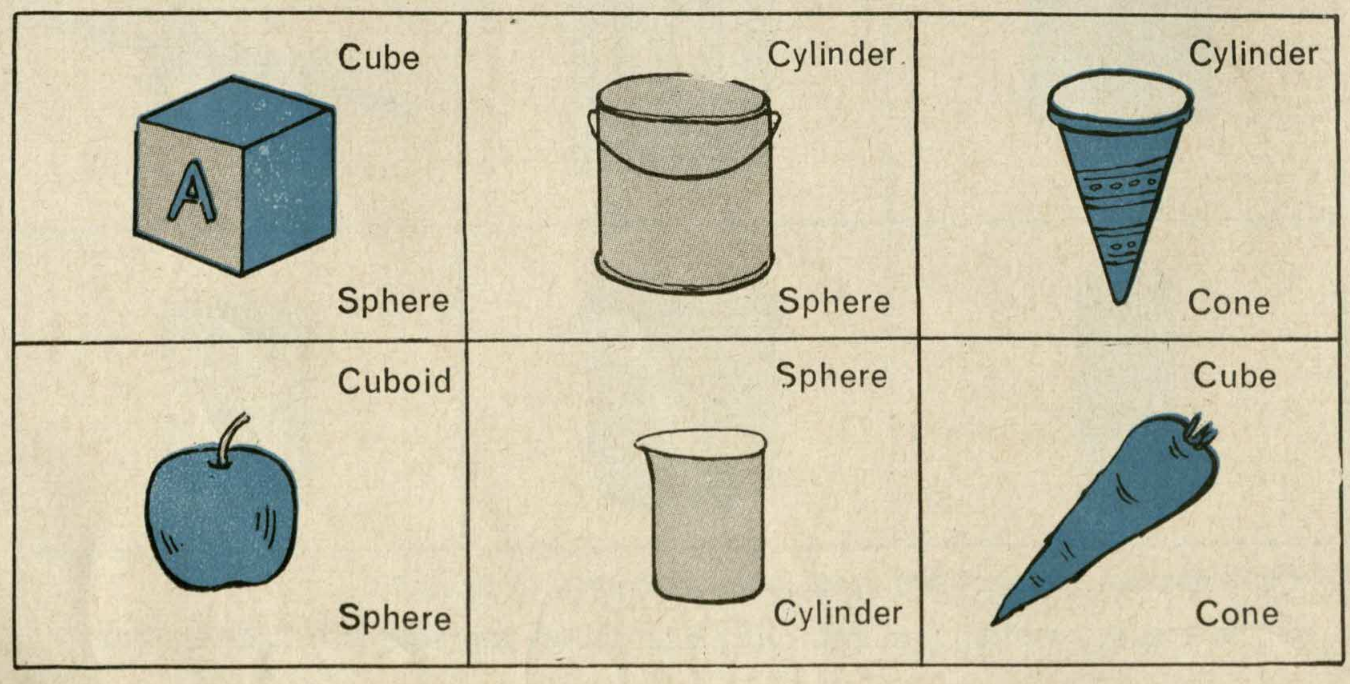
Go to a grocery shop and find out which things are sold in cylindrical tins.

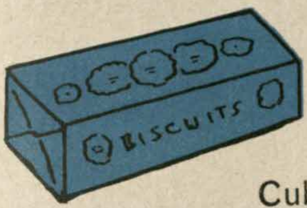
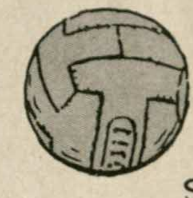
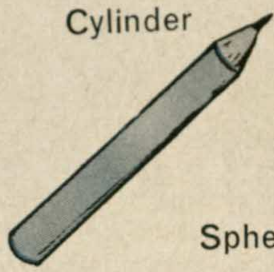
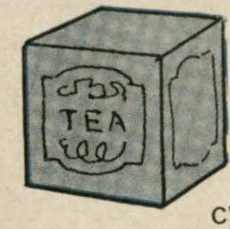
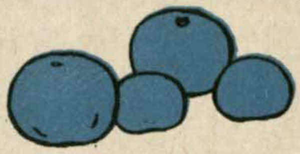
Cone



Go to a vegetable shop and find out vegetables which are of the shape of a cone.

Cross whatever is wrong



Cuboid  Cube	Cone  Sphere	Cylinder  Sphere
Sphere  cylinder cone	Cuboid  cube cylinder	Cone sphere  cube

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